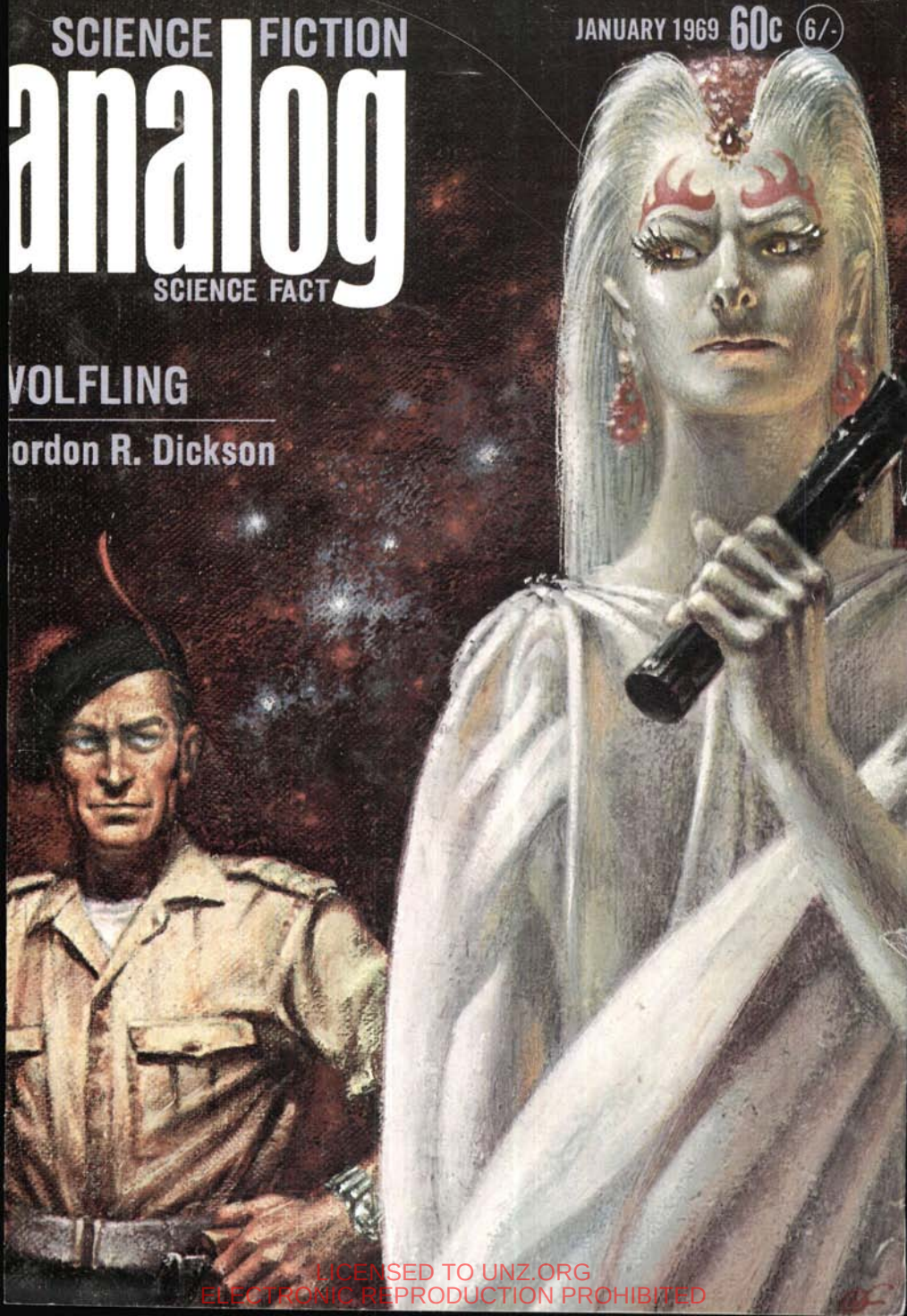

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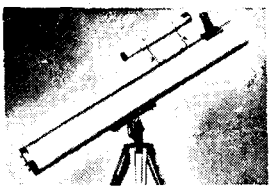

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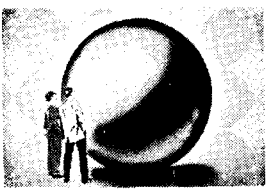

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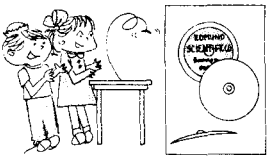

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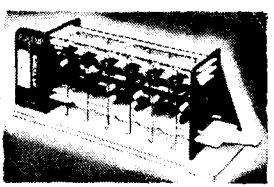

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analog

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NEXT ISSUE ON SALE
JANUARY 7, 1969
$6.00 per year
in the U.S.A.
60 cents per copy

Cover by
Kelly Freas

Vol. LXXXII, No. 5 January 1969

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Analog Science Fiction/Science Fact is published monthly by the Condé Nast Publications, Inc. Executive, Publishing, Editorial and Advertising offices: 420 Lexington Avenue, New York, N.Y. 10017. I.S.V. Patcevitch, President; Alfred W. Cook, Treasurer; Mary E. Campbell, Secretary. Second class postage paid at New York, N. Y. and at additional mailing offices, under the Act of March 3, 1879. Subscriptions: in U.S. possessions and Canada, $6 for one year, $10 for two years, $13 for three years. Elsewhere, $8 for one year, $16 for two years. Payable in advance. Single copies: in U.S., possessions and Canada, 60¢. For subscriptions, address changes and adjustments, write to Analog Science Fiction/Science Fact, Box 2205, Boulder, Colorado 80302. Six weeks are required for change of address. The editorial contents have not been published before, are protected by copyright and cannot be reprinted without the publisher's permission. All stories in this magazine are fiction. No actual persons are designated by name or character. Any similarity is coincidental. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage.

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RIGHT PROBLEM/WRONG SOLUTION

an editorial by John W. Campbell

I cannot recall ever having read of any instance in which a gun killed a human being. I cannot, therefore, see any reason to pass laws against guns.

I have, however, seen far, far too many instances in which human beings have used guns to commit murder, and I can see the absolute necessity for having, and enforcing, stringent laws against the *misuse* of guns.

Guns, as manufactured today, are extremely reliable, safe, stable devices; they do not spontaneously explode save under the most drastic conditions such as fire, or extremely violent impact in just the wrong direction.

Human beings, on the other hand, are remarkably unsafe and unstable devices who do explode spontaneously under quite unpredictable circumstances.

I am strongly opposed to the "gun laws" currently being discussed, because they are one hundred percent directed at the wrong problem. They will, if enacted, make the situation more dangerous, rather than less. They are, in effect, equivalent to treating a man with acute appendicitis by giving him a heavy dose of morphine. The dope makes him feel much better—it damps out the frantic pain-warnings his nervous system has been giving him, and he can comfortably drift off to sleep while the appendix ruptures and spreads lethal peritonitis through his body.

Laws directed at guns will tend to make the public feel as the appendicitis victim did—that something useful has been done, and they can go back to sleep because the symptom—but not the disease! — has been treated.

Nothing is, in the long run, more dangerous than so treating a symptom that the cause of that symptom is happily ignored.

To pass laws against ownership of guns, to require licensing, as a means of restraining murderers, is about as useful as morphine as a treatment for acute appendicitis.

First, consider the registration concept as a means of stopping murderers-with-guns.

Problem No. 1: Grandfather,

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thirty years dead now, had a fine high-power rifle he used in hunting when he was more active. He stored it—carefully greased and cared for—in the attic forty years ago, back in 1928. That rifle is still in perfect condition; the ammunition stored with it may be a bit unreliable now, but it's still usable. Modern explosives engineers—and those of forty-fifty years ago, too!—know and knew their business.

But . . . who, in the family, now remembers that the gun is still up there? And who, in the family, is most apt to find the gun? Great-grandson, age fourteen or so, in his ceaseless explorations. Who else would dig that far down among the dusty mementos of bygone days?

Consequence: An illegally unregistered gun in the hands of a teen-ager who couldn't get a license anyway.

Problem No. 2: Bill Blow has a rifle, knows it's there, but hasn't used it in years and doesn't have any intention of using it, because he never has time to go out after rabbits any more. Since he doesn't intend to use it, and registration is a damn nuisance, he doesn't bother.

Problem No. 3: It's easy to license and register automobiles; an automobile hidden away in a garage somewhere may escape notice—but you can't use it *as an automobile* without exposing it to immediate notice, and immediate demands for registration. Take it on the road, and people see it.

So all usable automobiles are registered and licensed.

Yet practically every major crime involves the use of an automobile, properly registered and licensed . . . to some good citizen from whom it was stolen just before the criminal act.

If licensing and registration were any good whatever in preventing the use of an object—automobile or gun—in crime, the one hundred percent complete registration of functional automobiles would make bank-robbery getaway cars impossible.

Problem No. 4: When is a piece of pipe a gun? Every major-city JD knows the technique of making a perfectly workable, adequately deadly bullet-projector from things as common as a piece of water pipe, nails, wood scrap and rubber bands. Can you arrest anyone carrying a piece of water pipe along the street on the grounds he has "a concealed gun"?

O.K.—so such guns won't carry accurately more than about twenty feet. But how far was Sirhan Sirhan from Robert Kennedy when the lethal wounds were inflicted?

Overall conclusion: It's impossible to register all guns; even with intentional cooperation they wouldn't all be remembered. If they were all registered, it wouldn't do any more good than the registration of cars does in preventing

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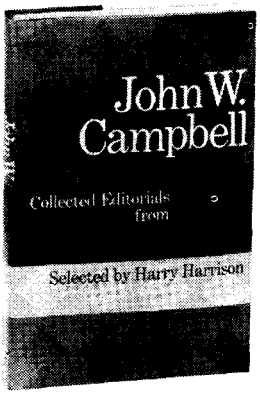

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their use in crimes. Besides which, anyone who wants to can flange up a workable bullet-projector.

And that leaves out the possibilities of longbows, crossbows, and assorted simple, highly effective bombs.

Criminals are generally willing to take risks—they're usually nutty enough to take crazy risks, like the famous New York City case of the safecracker who got off *because* he took insane risks. The man was a known cracksman, who specialized in blowing safes by pouring in some nitroglycerin and then setting it off.

The police had walked in on him, and found him prepared for his next jobs—he had a quart milk-bottle half full of nitroglycerin sitting on the mantlepiece in his cheap apartment. He had prepared it by putting commercial dynamite in hot water, so the nitroglycerin was displaced from the adsorbent by water, and floated to the top, where he skimmed it off.

When he was brought to trial, his lawyer claimed insanity, and the jury agreed with the lawyer—no psychiatrist needed. Any man who lives for ten days or more with a half-quart of nitroglycerine sitting in a milk bottle on his mantlepiece *must* be insane.

Your friendly corner drugstore can readily supply the ingredients

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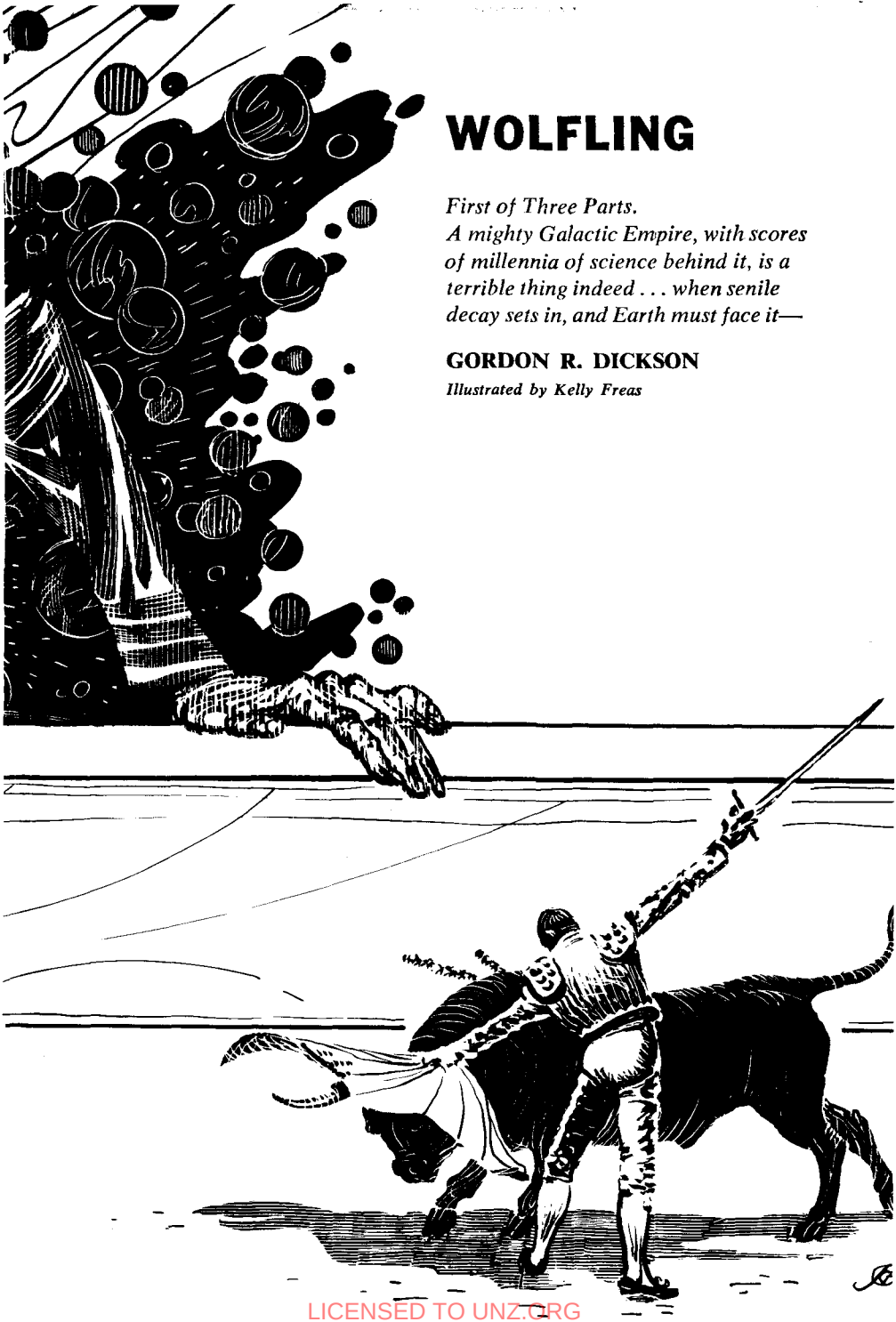

WOLFLING

First of Three Parts.
A mighty Galactic Empire, with scores of millennia of science behind it, is a terrible thing indeed . . . when senile decay sets in, and Earth must face it—

GORDON R. DICKSON

Illustrated by Kelly Freas

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The bull would not charge.

James Keil stamped his foot and shouted at the animal, but still it would not charge—and it was programmed to charge. Or rather, it was programmed to still be willing to charge at this point in the bullfight.

There was nothing to be done about it. The finest physical tests available could not measure the probable endurance, or bravery, of a bull. This one was tired. Jim would have to step up the pattern and make the kill, now.

He moved toward the bull, stamped and shouted again, and tempted the weary beast into one more attack. As the near horn swept by, grazing his hip and waist, he sucked his belly in hard, feeling a little streak of internal coldness along the line of the graze. Like the bull, he was programmed; and as long as they both stuck to their programming, he was safe. But he was a bullfighter only by courtesy of six months of intensive training. Also he had free will, where the bull had not—and free will meant the power to break programming and make mistakes.

If he made a mistake, this bull could still kill him.

Therefore, he was careful to make no mistakes—even now. The bull was almost at the end of its strength. He led it carefully through a few more passes, then took his sword and went in over the horns for the kill.

The bull grunted, went to its knees and rolled over on its side as he withdrew the blade. As he watched its death with an impassive face, a female figure appeared without warning on the sand of the arena beside him, looking down at the fallen bull.

He turned to face her. It was the Princess Afuan, aunt to the All-Emperor, and head of the visiting party of High-born who had occupied the official box across the arena; surrounded there by the short, brown-skinned local humans of Alpha Centauri III. Afuan was neither short nor brown—no more than she was, in height or color, in any way similar to an Earth-born Caucasian like Jim, himself.

She was dressed—if that was the word—in some sort of white, filmy, cloud stuff. It left her arms bare, but covered her otherwise, from the armpits to the ankles, dividing only with the movement of her legs as she walked. Above that cloud stuff, her skin also was white, but not in the sense that Jim's skin was "white."

Afuan's skin was the color of white onyx; and Jim could see the blue veins pulsing dimly within the marble column of her throat. Her face was narrow and her eyes were large, and a startling lemon-yellow in color. So that, even though they lacked any epicanthic fold similar to the oriental, they seemed to give the impression of being slitted and feline, below the whitish eyelashes

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and eyebrows on either side of her long, straight nose. In a sculptured, abstract way, she could have been called beautiful—and she was as tall as Jim himself, who stood six feet six.

"Very entertaining," she said now to Jim, speaking the Empire tongue with a rapid, almost hissing accent. "Yes, we'll certainly take you with us, ah . . . what's your world-name, Wolfling?"

"Earthman, High-born," Jim answered.

"Yes, well . . . come to our ship, Earthman. The Throne World will appreciate seeing you," she said. She glanced past him at the other members of his *cuadrilla.* "But not these others, these assistants of yours; no point in cluttering up the ship. We can supply you with anything you need to perform, once you get to the Throne World."

She started to turn away, but Jim spoke.

"Excuse me, High-born," he said. "You can supply me with new assistants, but you can't supply me with the fighting bulls. They've been genetically selected over generations. I've got half a dozen more in cryogenic storage with me here. I'd like to take those."

She turned back to look at him. Her face was completely unreadable. For a moment Jim was not sure but that in speaking up he had angered her; to the point where she would destroy the work of five years by saying she would not take him along to the Throne World after all. But then she spoke.

"Very well," she said. "Tell whoever takes you aboard our ship that you need these animals shipped, too; and that I said they should be."

She turned away again, then, finally; and stood gazing down with interest at the dead bull. As if her movement was a cue, suddenly a dozen or more members of her retinue had also winked into existence on the sand of the arena and were examining the bull and even the suits and equipment of other members of the *cuadrilla.* The women were none of them more than an inch or two shorter than Afuan; and the tall, slim, white, onyx-skinned men ranged between six feet ten and seven feet in height. Unlike the High-born women, the men wore short kilts and tunics made out of some material more like ordinary cloth. But in almost all cases the color of their clothing was white, except for a single design in some other color, written either on the front or back of their tunics.

No one offered to examine Jim, as they were examining the others of the *cuadrilla.* He turned and walked away, sheathing his sword, across the sand and down under the seats of the arena along a sloping concretelike passageway illuminated by some source of light apparently within the very material

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of the walls themselves—one of the Empire luxuries which the local humans of Alpha Centauri III seemed to use without making any effort to understand their workings.

He reached the door of his room, opened it and stepped inside. Within the windowless main dressing room, he saw two things in a single glance.

One was Max Holland, the man from the UN Special Committee Section. The other were his own two suitcases, he had packed them in hopes of the trip to the Throne World that had now become a reality. But now the suitcases were opened and their contents had been strewn about on the furniture of the room.

"What's this?" Jim said, stopping and looking down at the smaller man.

Holland's face was dark with anger. "Don't think—" he began in a choked voice; and then got control of himself. His voice firmed. "Just because Afuan's agreed to take you doesn't mean you're going to take some of these things to the Throne World!

"So, you know I'm invited?" Jim asked.

"I'm a good lip-reader," answered Max, thickly, "and I had binoculars on you from the moment you started your bullfight until you walked away, just now."

"And you came ahead of me down here, and decided to have a look at my luggage?" said Jim.

"That's right!" said Max. He turned sharply and snatched up two items from a couch, beside him. One was a Scottish kilt in the Black Watch tartan, with a small knife in a sheath attached to it. The other was a suntan shirt with shoulder tabs; through one of which ran the shoulder belt of a Sam Browne belt, to which was fitted a holster containing a forty-five caliber revolver. Max all but shook these two articles under Jim's nose.

"You are going to the Throne World of a human Empire a hundred thousand years old! A world where they outgrew primitive weapons like this so long ago they probably don't even remember them."

"That's just the point in taking them," said Jim.

He took back the kilt with its small knife, and the shirt with its Sam Browne belt, from Max's hands so smoothly that the other for a second did not seem to know that they were gone. He carried both items of clothing back over to the open suitcases, where he laid them down. He began to calmly repack the luggage.

"*What* point?" Max blazed behind him. "Jim, somehow you seem to have got the idea that you're a loner, in this whole project! Just let me remind you—it took a hundred and sixty-two governments, a couple of billion dollars, and the work of thousands of people to train you; and bring you here, to

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the point where you could get yourself invited to play bullfighter on the Throne World-"

Jim, without answering, folded the kilt and placed it back into one of the open suitcases.

"Listen to me!" snarled Max behind him. The smaller man grabbed Jim's arm and tried to swing him around. Jim turned.

"I tell you—*you're not going to take those things!*" said Max.

"Yes, I am," said Jim.

"I say you're not!" shouted Max. "Who do you think you are, anyway? You're just the man who was picked to go in to the Throne World and observe. Got that? *Observe!* Not stick people with knives, or shoot them with guns, or do anything else to draw any more Imperial attention to Earth than there is already. You're an anthropologist, play-acting a bullfighter, not some cloak-and-dagger spy!"

"I'm all three," said Jim, briefly and a little coldly. The color slowly went from Max's face.

"God . . ." said the smaller man. His hand fell away from Jim's arm. "Ten years ago we didn't know they existed—a whole empire of human-occupied worlds stretching in from Alpha Centauri here toward the galactic center. Five years ago, you were only a name on a list. I could have put a pencil mark through you and you wouldn't have been here now. Even a year ago, I was ready to start questioning whether we'd been training the right man—and you picked just then to put on such a good show nobody'd have listened to me. Now it turns out I was right, after all. An Empire of a thousand worlds, and one little Earth. They forgot us once, and maybe they could forget us again—but not if you're the man who goes in and observes them. I was right a year ago. You've got some ax of your own to grind with these High-born—"

He choked and broke off. He breathed deeply and straightened his back.

"Forget it," he said, more calmly. "You're not going. I'm aborting the Project—on my own responsibility. Earth can ask me all the questions they want—after that Imperial ship leaves."

"Max," said Jim, almost gently, "it's too late for you to stop me now. I've been invited by the Princess Afuan. Not you, or the whole Project, or the whole Earth would be permitted to interfere with her invitation, now. Do you think she'd allow that?"

Max stood staring at Jim, with dark-circled, bloodshot eyes. He did not answer.

"I'm sorry, Max," said Jim, "but it was bound to come to this sooner or later. From here on out the Project can't guide me any longer. From now on I have to follow my own judgment."

He turned back to his packing.

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"*Your* judgment!" A little moisture flew with the words to touch coldly against the side and back of Jim's neck. "You're so sure of your judgment? Compared to those High-born like Afuan, you're just as ignorant, just as primitive, just as savage as all the rest of us back on Earth! You don't know anything! Maybe Earth *is* one of their colonies that they forgot about. Or maybe it's just coincidence that we, too, seem to belong to the same race—as well as these people we found here on Alpha Centauri III! Who knows? I don't; no Earthman does. And neither do you! So don't talk about your judgment to me, Jim! Not with the whole future of Earth riding on what you do, once you get there, in the Imperial household!"

Jim shrugged. He turned back to his packing and felt his arm violently seized and wrenched as Max tried to turn him around once more.

Swiftly, this time, Jim turned. He knocked Max's grip loose with the edge of his right hand, and then put that same hand, calmingly it seemed, upon the smaller man's shoulder. But the thumb reached up from the grip of the other four fingers to lay itself against Max's neck behind the right point of the angle of his jawbone; and it pressed in slightly.

Max's face whitened, and he gasped. He drew a quick short breath, and tried to back away. But the grip of Jim's hand held him.

"You . . . you're a fool!" stammered Max. "You'd *kill* me?"

"If I had to," said Jim calmly. "That's one of the reasons I'm the right man to go."

He released his grip, turned away, closed the open suitcase into which he had put the kilt and the shirt with the Sam Browne belt; and picked up both the heavy suitcases. He turned, and went out through the door, turning left and away up the corridor in the opposite direction that led to the street and the vehicle that was waiting for him outside the arena. As he neared the entrance, he heard Max shouting after him, his words distorted by the long tunnel of the corridor. Glancing back, he saw that the other man had come out of the dressing room to stand staring after him.

"*Observe!*" Max shouted in English after him up the corridor. "Do anything else, Jim, to get Earth into trouble with the High-born, and we'll shoot you, like a mad dog, when you get home!"

Jim did not answer. He stepped out into the bright, yellow sunlight of Alpha Centauri III, and into the open, four-wheeled, jeeplike vehicle that was there waiting for him with its driver at the controls.

II

The driver of the vehicle was a member of the Earth Trade Dele-

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gation staff—the Trade Delegation which, with the Trade Delegations from two other Empire-inhabited solar systems, had combined with the Alpha Centaurans of this planet to put on various shows out of their local cultures for the visiting High-born. It was always the hope of those putting on such shows that the result would be some form of preference by the High-born visitors. But just as Earth had stood the best chance of arousing interest—being, in theory, a newly rediscovered part of the Empire—so Earth had the highest hopes that its show of the art of bullfighting would be carried back by the visitors to the Throne World to amuse the Emperor.

The driver took Jim and his luggage through the surrounding city and out to the open spaceport, an endless stretch of brownish, cementlike material. In one area of this, all by itself, sat a huge ovoid which was the ship of the High-born. The driver drove Jim up to this ship and stopped.

"Want me to wait?" asked the driver.

Jim shook his head. He took the two suitcases out of the vehicle, and watched as the driver put it in motion and drove off, dwindling to toy-size in the distance across the spaceport area.

Jim set his suitcases down and turned to look at the ship. From the outside it seemed perfectly featureless. There were no ports, no air locks, no signs of apertures or entrances to the interior. Nor did anyone aboard the huge vessel seem to be aware that Jim was there.

He sat down on one of his suitcases and began to wait.

For a little over an hour nothing happened. Then, abruptly, while he was still sitting on his suitcase, he was no longer on the spaceport concrete, but with both bags in what appeared to be a green walled, egg-shaped room with some sort of darker green carpet underfoot and cushions of all colors and sizes from six inches in diameter to something like six feet, furnishing it.

"Were you waiting long, Wolfling?" asked a girl's voice. "I'm sorry. I was busy taking care of the other pets."

He stood up and turned about from his suitcase; and he saw her, then. By the standards of the High-born, she was short—probably no more than five feet ten inches in height. Also her skin, although it approached the onyx-white of the Princess Afuan and the others, had a brownish tinge, like a pale shadow of the brownishness of an American Indian. The brownishness extended to her eyes, which were rather a dark gold, flecked with little sparkles of red highlights, rather than the lemon-yellow Jim had seen in Afuan. Her face was less long than Afuan's, and more rounded of jaw. She smiled

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in a way that was very unlike the unscrutability of the High-born princess; and when she smiled, the ghosts of a small cloud of something like freckles appeared across her nose and up her cheeks. Finally, her hair, though she let it hang straight down her back, as had the other High-born females Jim had seen in the arena, was plainly yellow-blond, rather than white and it did not hang as straight as Afuan's, but had a perceptible wave and thickness to it.

Her smile vanished and her face darkened suddenly with an abrupt flood of blood below the skin. It was a literal flush—the last thing Jim had expected to discover upon the face of one of the High-born.

"That's right, stare at me!" she said, spiritedly. "I'm not ashamed of it!"

"Ashamed of what?" asked Jim.

"Why—" she broke off suddenly. Her blush fled, and she looked at him contritely. "I'm sorry. Of course—you're a Wolfling. You wouldn't even know the difference, would you?"

"Evidently not," said Jim. "Because I don't seem to understand what you're talking about."

She laughed—but a little sadly, it seemed to him; and patted his arm unexpectedly, with a light, consoling touch.

"You'll learn soon enough," she said, "even if you are a Wolfling. I'm a throwback, you see. Something in my gene pattern was atavistic. Oh, my father and mother were as High-born as anyone outside the Main Royal Line; and Afuan will never dismiss me from her household. But, on the other hand, she can hardly show me off. So, I'm left with doing things like taking care of the pets for her. That is why I am the one who brought you on board just now."

She glanced down at his two suitcases.

"Is that your equipment there?" she asked. "I'll put it away for you."

Instantly, the two pieces of luggage vanished.

"Just a minute," said Jim.

She looked up at him, a little puzzled.

"Didn't you want them put away just yet?" she asked. Instantly, the bags were back at their feet.

"No," answered Jim. "It's just that there are other things to bring aboard. I told your Princess Afuan that I would need the bulls—the creatures I work with when I put on my show. I've got six more of them in cryogenic storage back in the city. She said I could bring them along; and to tell whoever brought me aboard the ship that she said it was all right."

"Oh!" said the girl, thoughtfully. "No . . . don't try to tell me. Just think about where they are in the city."

Jim obliged by summoning up a

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mental picture of the refrigerated warehouse behind the compound housing the Earth Trade Delegation, where his bulls were stored. He felt a curious light touch in his mind—a sort of passing sensation, as if his naked brain had been lightly brushed by a feather. Abruptly, he and the girl were standing in the refrigerated warehouse, before the stack of six huge cases, each with the frozen body of a fighting bull in suspended animation within it.

"Yes," said the girl, thoughtfully. Abruptly, they were some place else.

This new place was a large, metal-walled chamber with a small assortment of cases and other objects arranged in neat piles at intervals about its floor. The stack of cases containing the frozen bulls were now here, also. Jim frowned. The temperature of the room was clearly in the comfortable seventy-degree range.

"These animals are frozen," he told the girl. "And they have to stay frozen—"

"Oh, don't worry about that," she interrupted; and then smiled at him, half in cheerfulness half it seemed in apology for interrupting him. "Nothing about their condition will change. I've left orders with the ship's control to see to that."

Her smile widened.

"Go ahead," she said. "Put your hand out and feel for yourself."

Jim reached out his hand toward the side of the nearest case. There was no change in temperature until his fingertips came within an inch or two of the surface of the case—then they suddenly encountered bone-chilling atmosphere. The cold, he knew, could not come from the cases, since these were superbly insulated. He withdrew his hand.

"I see," he said to the girl. "All right. I won't worry about my bulls."

"Good," she answered.

Instantly, they were elsewhere. Not back in the egg-shaped room; but in another, long room, one side of which appeared to be glass, looking out on a strip of beach and the surf of an ocean shore—the shore of an ocean stretching away to the horizon. But the sight of an ocean aboard a spaceship was no less startling than the other things to be seen within the rectangular, glass-walled room itself.

These were a variety of creatures, running from something like a small, purple-furred squirrel to a creature farther down the room who was tall and covered with black fur—more than apelike but still less than human.

"These are my other pets," he heard the girl saying at his elbow; and looked down into her smiling face. "I mean—they're really Afuan's pets. The ones I take care of for her. This one—"

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She stopped to pet the small, purple-furred squirrel; which arched itself like a satisfied cat under her hand. Neither it, nor any of the others seemed to be chained, or restrained in any way. Yet they all stayed some little distance from each other.

"This one," the girl repeated, "is Ifny—"

She broke off suddenly, jumping to her feet.

"I'm sorry, Wolfling," she said. "You must have a name, too. What is it?"

"James Keil," he answered her. "Call me Jim."

"Jim," she echoed, trying it out, with her head cocked on one side. In her Empire accent, the "em" sound was prolonged, so that the short, familiar form of James came out sounding more musical than it might have in English.

"And your name?" Jim asked her.

She started, and looked at him almost in shock.

"But you should call me High-born!" she said, a little stiffly. The next moment, the stiffness had melted, as if her interior warmth of character would not endure it. "I do have a name, of course. I have several dozens of them, in fact. You know we all go by one name, familiarly. My normally-used name is Ro."

Jim inclined his head.

"Thank you, High-born," he said.

"Oh, call me Ro . . ." she broke off, as if a little frightened at what she was saying. "When we're alone, anyway. After all, you are human, even if you are a Wolfling, Jim."

"That's something else you can tell me, then, Ro," said Jim. "What is this 'Wolfling' that everyone calls me?"

She stared at him for a moment, almost blankly.

"But you— Of course, you'd be the very one who wouldn't know!" she said. Once more she blushed in that remarkable fashion he had noticed earlier. Plainly, it was the lightness of her skin, for all its brown tint, that caused the sudden rush of blood to her features to be seen. But it was unusual for Jim to see such a marked reaction in any adult woman. "It's . . . . not a very nice name for you, I'm afraid. It means— It means something like you are a human being, all right, but one who has been lost in the woods and brought up by animals, so that you don't have any idea of what it's really like to be a human."

Her blush flared again.

"I'm sorry . . ." she said, looking down. "I shouldn't have called you that, myself. But I didn't think. I'll always call you Jim, from now on."

Jim smiled.

"It doesn't matter," he said.

"Yes, it does!" she said, fiercely, looking up at him abruptly. "I know what it's like to be called

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names. I never let anybody call any of my . . . Afuan's . . . pets names. And I'm not going to let anybody call you names, if I can help it."

"Well, thank you, then," said Jim gently. She patted his arm again, soothingly.

"Come meet my other pets," she said, moving down the line.

Jim went with her. The creatures in the room—each one seemed free to wander about the room, but at the same time enclosed and protected by an invisible barrier that kept it from coming any closer than four or five feet to one of the other creatures. They were plainly all animals. Curiously, also, they all appeared to resemble at least to some extent, an animal-type that either was on Earth, or had been at some period in its geologic history. This, in itself, was interesting. It seemed to substantiate the Empire's assumption that the people of Earth were part of its own basic stock—lost, only to be found again when they ventured by their own scientific powers back in as far as Alpha Centauri. The alternative was to assume that human-habitable planets had evolutionary parallels to an extremely remarkable degree.

Still, even this could be . . . a parallelism among fauna on various worlds did not absolutely prove a common ancestry for its dominant species.

Jim noticed something also that was very interesting about Ro, herself. Most of the animals responded happily when she spoke to them or petted them. Even those who did not—and she handled even the fiercest of them without hesitation—showed absolutely no hostility. The farthest they got from expressions of happiness at her attention was something like a lazy indifference. Such as in the case of one large catlike creature—easily as big as a South American jaguar and somewhat resembling the jaguar in its striped coat, although a heavy horselike head spoiled the general picture. This catlike creature yawned and allowed itself to be petted, but made no great effort to respond to Ro's caresses. The apelike creature with the black hair, in contrast, sadly clung to her hand and gazed into her face as she spoke to it and stroked its head; but it made no other response.

Letting go of its hand at last—pulling away, in fact—Ro turned finally to Jim.

"Now you've seen them," she said. "Maybe you'll help me take care of them, sometimes. They really should have more attention than I give them. Afuan for months on end forgets she has them . . . Oh, that won't happen to you . . ." she interrupted herself suddenly. "You understand? You're to perform for the Emperor when we get back to the Throne World. And as I say; you're not an animal."

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"Thank you," said Jim, gravely.

She looked surprised, then laughed. She patted his arm in the gesture he was beginning to find customary on her part.

"Now," she said, "you'll want to get to your own quarters."

Instantly they were in a room that they had not been in before. Like the room containing the pets, it had a glass wall window looking out on the beach and the ocean beyond; which, whether illusion or reality, rolled its surf within thirty feet of the glass wall, itself.

"These will be your quarters," said Ro. Jim looked around him. There was no sign of a door in any of the walls.

"Don't you suppose," he said, "you'd better tell this Wolfling how to get around from one room to the next?"

"To the next?" she echoed, with a puzzled frown—and suddenly he realized that she had taken him literally. His mind seized on the implications of that.

"I'm sorry," he said, "I simply meant from this room to any other room. But—just for the fun of it—what is the room that's just beyond that wall, there?"

He pointed to the blank wall of the room opposite the one of glass overlooking the beach and the ocean.

She stared at the wall, frowned again, and finally shook her head.

"Why . . . I don't know," she said. "But what difference does it make? You go to all rooms the same way. So there's really no difference. It doesn't matter where in the ship they are."

Jim filed this information mentally for future reference.

"I should know how to get myself from room to room, though, shouldn't I?" he asked.

"Oh," she said, "I'm sorry. Of course, you don't know. The ship runs everything. You have to tune in to the ship; then it'll do anything you want."

She lit up suddenly.

"Would you like to see what the rest of the ship looks like?" she asked. "I'll take you around. Why don't you get yourself settled in here, or unpack, or whatever you want to do; and I'll come back in a little while. How soon should I come back?"

Jim mentioned a time in Empire units which was roughly the equivalent of fifteen minutes.

"Fine," Ro said, smiling at him. "I'll be back when the time's up."

She vanished.

Left alone, Jim examined the room, which was furnished with hassocks and pillows of all sizes—much as the first room he had seen aboard ship, where he had met Ro. The one very large hassock, some four feet thick and eight feet in diameter at one end of the room, he took to be the bed. At first there seemed nothing in the shape

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of a bathroom. But the moment this thought occurred to him a section of the wall obediently slid aside, and he found himself looking into a smaller room fitted out with a complete assortment of recognizable lavatory facilities, up to and including a swimming pool —and with several other articles of plumbing which seemed to make little sense. For example, there was one shallow completely dry basin large enough for him to stretch out in.

He turned back to his main room, and with a corner of his eye, saw the door to the bathroom slide shut behind him. He picked up his two suitcases, put them on the bedlike hassock and opened them. No sooner had he done so, than another section of the wall opened and he found himself looking into what might have been the closet if there had been any pole or clothes hangers in it.

Experimentally—he was beginning to get the hang of things aboard ship now—he tried to imagine his clothes as being hung up in the closet.

Obligingly, they were suddenly there—the only unusual part of their appearance and situation being that they hung as he had imagined them, but without any visible means of support—suspended vertically in mid air as if held by invisible hangers from an invisible rod.

Jim nodded. He was about to think the closet closed again when, a second thought made him take the Scottish costume, complete with kilt and knife from where it hung unsupported in mid air; and changed into it, placing his suit of lights in the closet in its place—where it hung invisibly supported with the rest of his clothes.

The closet closed; and Jim was just turning away from it, when a visitor materialized in the center of his room. But it was not Ro. Instead, it was one of the male High-born—a man with onyx-white skin, at least seven feet tall.

"There you are, Wolfling," the High-born said. "Come along. Mekon wants to see you."

They were suddenly in a room which Jim had not been in before. It was rectangular and long; and they stood in about the middle of it. There were no other humans in the room. But, at the far end, on a sort of pillow-strewn dais, there lay curled a feline similar in every respect to the one among Ro's pets. It lifted its horse's-head at the sight of their appearance in the room; and his eyes fastened upon Jim.

"Wait here," said the High-born who had brought Jim here. "Mekon will be with you in just a moment."

The tall man vanished. Jim found himself left alone with the felinelike beast, which was now lazily rising to its feet, staring down the room at him.

Jim stood still, staring back.

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The animal made a curious, whining sound—a sound almost ridiculously small to come from something obviously so powerful physically. Its short stub of a tufted tail began to jerk vertically up and down, stiffly. Its heavy head lowered until its lower jaw almost touched the floor of the dais and its mouth slowly opened to reveal big, carnivorous teeth.

Still whining, it began slowly to move. Softly, almost delicately, it put one front paw down from the dais; and then another. Slowly, it began to move toward him, crouching and whining as it did. Its teeth were fully visible now, and as it approached its whine grew in volume, until it was a sort of singing threat.

Jim waited, motionless.

The animal came on. About a dozen yards from him it stopped, and gradually crouched. Its tail was jerking like a metronome now, and the singing whine that came from its throat was filling the whole room.

For what seemed a long time, it crouched there, jaw hung open, whining. Then, without warning the whining stopped; and it launched itself through the air at Jim's throat.

III

The felinelike creature flashed forward and upward into Jim's face —and vanished.

Jim had not moved. For a moment he was alone in the long, rectangular room; and then suddenly there were three of the High-born males around him; one of them with a dragonlike insignia upon his shirt or tunic-front. That one had brought Jim here. Of the other two, one was almost short by High-born standards—barely three inches taller than Jim. The third was the tallest of the three—a slim, rather graceful looking man with the first expression resembling a smile Jim had seen on purely onyx-colored features; and this last of the three High-born wore a red insignia which looked somewhat like the horns and head of a stag.

"I told you they were brave, these Wolflings," drawled this last member of the group. "Your trick didn't work, Mekon."

"Courage!" said the one addressed as Mekon, angrily. "That was too good to be true. He didn't even move a muscle! You'd think he'd been—"

Mekon bit off the words abruptly, glancing hastily at the tallest of the trio, Slothiel, who had stiffened.

"Go on. Go on, Mekon," drawled the tall High-born, but there was an edge to his drawl. "You were going to say something like . . . 'warned'?"

"Of course Mekon didn't mean to say anything like that," it was Trahey—almost literally pushing

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himself between the other two men, whose eyes were now fixedly fastened on each other.

"I'd like to hear Mekon tell me that," murmured Slothiel.

"I . . . of course, I didn't mean anything of the sort. I don't remember what I was going to say," Mekon murmured.

"Then I take it," said Slothiel, "that I've won. One Lifetime Point, to me?"

"One . . ." The admission clearly stuck in Mekon's throat. His face had darkened with a rush of blood similar to the flush that Jim had noticed come too easily to the face of Ro. "One Lifetime Point to you."

Slothiel laughed.

"Don't take it so hard, man," he said. "You can have a chance to win it back anytime you've got a decent wager to propose."

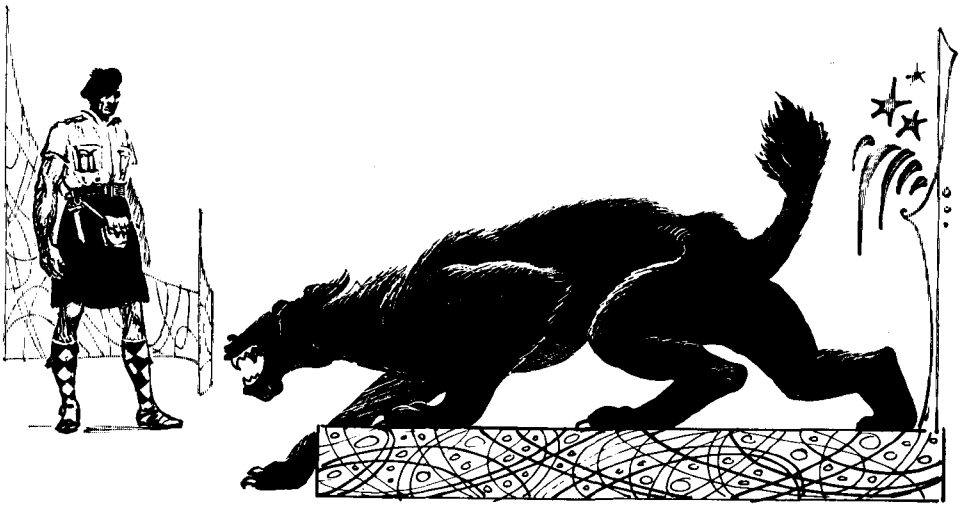
Mekon's temper flared up again.

"All right," he snapped, and swung to face Jim. "I've given up the point—but I'd still like to know why this Wolfling didn't even twitch when the beast went for him. There's something unnatural here."

"Why don't you ask him?" drawled Slothiel.

"I *am* asking him!" said Mekon, his eyes burning upon Jim. "Speak up, Wolfling. Why didn't you show any sign of a reaction?"

"The Princess Afuan is taking me to the Throne World to show me off to the Emperor," Jim answered quietly. "I could hardly be shown off if I were badly torn up, or killed, by an animal like that one. Therefore, whoever was responsible for the cat coming at me was certain to make sure that I wouldn't be hurt by it."



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Slothiel threw back his head and laughed loudly. Mekon's face, which had paled back to its normal color now flushed again with a dark rush of angry blood.

"So!" snapped Mekon. "You think you can't be touched, is that it Wolfling? I'll show you—"

He broke off, for Ro had suddenly appeared in the room beside them; and now she literally shoved herself between Jim and the angry High-born.

"What're you doing to him?" she cried. "He's supposed to be left with me! He's not for the rest of you to play with—"

"Why, you little mud-skinned throwback!" snapped Mekon. His hand darted out to the small black stick running through the two loops of the rope-like material that acted as a belt to her white dress. "Give me that rod!"

As his hand closed upon it, she snatched at it herself; and for a moment there was a tug-of-war in which the rod had come loose from the belt and they both had hold of it.

"Let go, you little—" Mekon raised one hand, clenching his fingers into a fist as though to strike down at Ro; and, at that moment, Jim suddenly stepped up to him.

The High-born yelled—it was almost a bass scream—and let go of the rod falling back and holding his right arm with his left hand. All down along his forearm a line dripped red; and Jim was putting the little knife back into its scabbard.

There was, instantly, frozen silence in the room. Trahey, the self-possessed Slothiel—even Ro—were utterly still, staring at the blood running down Mekon's forearm. If the walls of the ship had begun to crumble about them, they could not have looked more overwhelmed and stupefied.

"He . . . the Wolfling damaged me—" stuttered Mekon, staring wildly at his bleeding arm. "Did you see what he did?"

Slowly Mekon raised his eyes to his two companions.

"Did you see what he did?" Mekon screamed. "Get me a rod! Don't just stand there! Get me a rod!"

Trahey made a slow move as if to step towards Ro; but Slothiel, with suddenly narrowed eyes, caught Trahey's arm.

"No, no," murmured Slothiel. "Our little game isn't a game any more. If he wants rods, let him get them himself."

Trahey stood still. Ro abruptly disappeared.

"Blind you, Trahey!" shouted Mekon. "I'll collect from you for this! Get me a rod, I say!"

Trahey slowly shook his head, though his lips were almost bloodless.

"A rod—no. No, Mekon," he said. "Slothiel's right. You'll have to do that for yourself."

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"Then I will!" screamed Mekon —and disappeared.

"I still say you're a brave man, Wolfling," said Slothiel to Jim. "Let me give you a piece of advice. If Mekon offers you a rod, don't take it."

Trahey made an odd little sound —like a man who has started to speak and then thought better of it. Slothiel turned his eyes upon the other High-born.

"You were going to say something, Trahey?" he asked. "Perhaps you were going to object to my advising the Wolfling?"

Trahey shook his head. But the glance he threw at Jim was baleful.

Mekon suddenly reappeared, his arm still bleeding, but the hand at the end of it clutched two short black rods, like the one Ro had worn in the loops of her belt. He took one of these in his good hand; and thrust it at Jim.

"Take this, Wolfling " he snapped.

Jim shook his head and drew the small knife from his kilt.

"No thanks," he said. "I think I'll stick to this."

Mekon's face lit up, savagely.

"Suit yourself!" he said; and threw the rod he had offered across the room. "It makes no difference to me—"

"But it does to me!" cut in a new voice. It was a woman's voice, behind Jim. Jim turned quickly, and backed off a step so as to keep everyone in the room in front of him. Ro had reappeared, he saw; and with her was a tall female High-born whom Jim believed he recognized as Afuan. Behind both women towered a slim High-born male possibly even an inch or two taller than Slothiel.

"Well?" went on Afuan, if it was indeed she. "Has something happened to alter the tables of precedence, so that you think you can take it on yourself to rod one of my pets, Mekon?"

Mekon had frozen. Even the expression on his face—caught halfway between rage and astonishment—seemed fixed there by a sort of paralysis.

Behind the two women the unusually tall male High-born smiled slowly. It was a smile something like the lazy smile of Slothiel, but there was more of a feeling of power—and perhaps more of cruelty—in it.

"I'm afraid you've offended her majesty, Mekon," he said. "That could cost you more than a few Lifetime Points. Men have been banished to the Colonial Worlds for less."

Surprisingly, it was Slothiel who came to the defense of the paralyzed Mekon.

"Not perhaps in just such a case as this," said Slothiel. "The Wolfling assaulted Mekon first. Certainly someone like Galyan would understand how a man could react to something like that."

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The eyes of the tall High-born addressed as Galyan went out to meet with Slothiel. They looked at each other with a mutual amusement that seemed to hang upon the very lip of animosity. *Some day,* those looks seemed to say, *we will clash, but not now.* The Princess Afuan noticed the exchange; and instantly her own manner changed to one of brisk reasonableness.

"Nonsense!" she said. "He's only a Wolfling, after all! Do you enjoy looking disgusting, man?" This last phrase was addressed to Mekon. "Heal yourself!"

Mekon woke abruptly from his trance and looked down at his wounded arm. Jim looked at it also; and before his eyes he saw the long shallow cut slowly begin to close and firm over—without any of the ordinary signs of scabbing or healing. Within perhaps a second and a half the wound had disappeared, leaving only white onyx skin that looked as if it had never been cut. The dried blood on the arm remained; but after a second, Mekon passed his other hand along it and this, too, vanished. He was left with an arm not only whole but clean. Jim put the knife back into its scabbard at his belt.

"That's better," said Afuan. She turned to the tall man beside her. "I'll leave it to you, now, Galyan. See that Mekon pays some kind of a fine."

She vanished.

"You can go too, girl," Galyan said, looking down at Ro. "I didn't have a chance to watch this Wolfling putting on his act on the planet. After I deal with Mekon, I'd like to examine the wild man, myself."

Ro hesitated. Her face was unhappy.

"Go along," said Galyan, softly but sharply. "I'm not going to hurt your Wolfling! You'll have him back in perfect shape before you know it."

Ro hesitated a second longer; then vanished, in her turn, casting a strangely appealing glance at Jim just before she went, as if to caution him against any act that might lead to further trouble.

"Come with me, Wolfling," said Galyan. He disappeared. After a second, he reappeared, smiling quizzically at Jim.

"So you don't know how to move around in the ship, do you?" he said. "Very well, Wolfling. I'll provide your motive power."

At once, Jim found himself in a large, oval, low-ceilinged room with yellow walls which more resembled an office or a place of work than any of the rooms he had so far visited aboard the vessel. At hard surfaced slabs of what looked like stone floating in mid air and plainly in use as desk tops, three other men were at work—none of them High-born.

Two were brown, squat men—about the color of a white-skinned

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human from Earth with a good heavy suntan. They were no more than five and a half feet tall. The third, who was looking at what appeared to be a map, was possibly six inches taller and a hundred pounds heavier than the other two. His greater weight was not in body fat, but plainly in a very heavy, even massive skeleton and corresponding musculature. Unlike the two shorter men, who had long, straight brown hair hanging down their back almost in the fashion the way the white hair of the High-born women was allowed to hang, the third man was completely bald. His round, hairless skull with its grayish skin stretched tightly over the bone beneath was the most prominent feature about him; so that it made his eyes, his nose, his mouth and even his fairly good sized ears, seem small by comparison. This third man got up on seeing Galyan and Jim appear.

"No, no. It's all right, Reas," said Galyan. "Back to your work."

The powerful-looking man sat down again without a word and returned to his map-study.

"Reas," said Galyan, waving a hand at him, and looking down at Jim, "is what you might call my bodyguard. Although I don't need a bodyguard—no more than any of the High-born do. Does that surprise you?"

"I don't know enough about it to be either surprised or not surprised," answered Jim.

Galyan nodded, surprisingly as if in approval.

"No, of course you don't," he said. He sat down on a handy cushion; and reached out a long arm.

"Let me see that tool of yours," he said. "The one you used to hurt Mekon."

Jim drew the knife and passed it over, hilt first. Galyan accepted it gingerly, holding it between a thumb and two opposing fingers. He held it up in the air before his eyes and tenderly touched its point and edges with the long forefinger of his left hand. Then he handed it back to Jim.

"I suppose you could kill an ordinary man with something like that," he said.

"Yes," said Jim.

"Very interesting," said Galyan. He sat for a moment, as if caught up in his own thoughts. Then his eyes focused on Jim, once more. "You realize, I suppose, that you aren't allowed to go around damaging the High-born with tools like that?"

Jim said nothing. In the face of his silence Galyan smiled, almost as he had smiled at Slothiel—a little enigmatically, a little cruelly.

"You're very interesting, Wolfling," he said, slowly. "Very interesting, indeed. You don't seem to realize that you exist like an insect in the palm of any one of us who are High-born. Now, someone like Mekon would have closed his hand

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and crushed the life out of you long before this. In fact, that is just what he was about to do, when Afuan and I stopped him. But I'm not the sort of High-born that Mekon is. In fact, I am like no other High-born you will meet—except the Emperor; and, since we're first cousins, that's not surprising. So, I'm not going to close my hand on you, Wolfling. I'm going to reason with you—as if you were High-born, yourself."

"Thank you," said Jim.

"You do not thank me, Wolfling," said Galyan softly. "You do not thank me, or curse me, or plead with me, or praise me. You do nothing where I am concerned—but listen. And answer when you are questioned. Now, to begin with. How did you get into that room with Mekon, Trahey and Slothiel?"

Jim told him, briefly and emotionlessly.

"I see," said Galyan. He clasped his long hands around one knee and leaned back a little on his cushion, looking at a slight slant up into Jim's face. "So you trusted to the fact that the Princess intended to show you off to the Emperor; and that for that reason no one else would dare harm you. Even if such a faith was justified, Wolfling, you showed a rather remarkable control of your nerves to stand absolutely still while that beast jumped at your face."

He paused, as if to give Jim a chance to say something. When Jim did not, he murmured, almost deprecatingly.

"You have my leave to speak," Galyan said.

"What would you like me to speak about?" asked Jim.

Galyan's lemon-yellow eyes glowed almost like a cat's eyes in the dark.

"Yes," he murmured, drawing the "s" sound out slowly, "you are most unusual—even for a Wolfling. Though I haven't actually met that many Wolflings, so that I consider myself much of a judge. You're fairly good-sized for someone not High-born. Tell me, the rest of your people aren't as big as you, are they?"

"On the average, no," said Jim.

"Then they're bigger males among you?"

"Yes," said Jim, without expanding on the subject.

"As large as the High-born?" asked Galyan. "Are there any as tall as myself?"

"Yes," said Jim.

"But not many," said Galyan, his eyes glowing. "In fact, they're rare. Isn't that so?"

"That's right," said Jim.

"In fact," said Galyan, nursing his knee, "to be truthful about it you might say that they are practically in the class of freaks—aren't they?"

"You might say that," said Jim.

"Yes, I thought we'd get at the

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truth," said Galyan. "You see, Wolfling, we of the High-born are not freaks. We're a true aristocracy —an aristocracy of not merely inherited power superior to anything else owned by the various races of man. We're superior physically, mentally and emotionally. This is a fact that you will not have grasped yet; and normally the practice would have been to let you discover it the hard way on your own. However, I've taken an interest in you—"

He turned to Reas.

"Bring me a couple of rods," he said.

The heavy-boned bodyguard got up from his map, went across the room, and came back holding a pair of short black rods, like the one Jim had seen at Ro's belt, and like the two which Mekon had produced after Jim had used the knife on him. Another black rod, just like the two in the hands of Reas Jim noticed, was stuck through loops in the ropelike belt that encircled Reas's thick waist.

"Thank you, Reas," said Galyan, accepting the two rods. He turned to Jim. "I told you that you won't find other High-born like me. I'm remarkably free of prejudice toward the lesser races of man—not out of any sentimentality; but out of practicality. But I would like to show you something."

He turned his head and beckoned to one of the small, brown-skinned men with the brown hair hanging straight down his back. The man got up and came over to stand beside Reas; and Galyan handed him one of the two black rods Galyan now held. The man stuck it through the belt around his own waist.

"Reas, as I said," said Galyan to Jim, "is not only trained but actually bred to be a bodyguard. Now observe how he handles his rod compared to his opponent here."

Galyan turned to Reas and the other man who were now facing each other, at a distance of about four feet.

"I will clap my hands twice," said Galyan to them. "The first clap commences the draw—only Reas will not be allowed to draw until the second clap. Observe, Wolfling!"

Galyan lifted his hands and clapped them softly together twice, the second clap following about a half a second behind the first. At the sound of the first clap, the small brown man snatched the rod from his belt and was just bringing its far end up to point at Reas, when the second clap sounded and Reas drew his own rod swiftly and smoothly.

Just then, something in appearance like a cross between the flame of a welding torch and the arc of a static electricity charge crackled from the end of the rod held by the smaller man. It was aimed directly at the chest of Reas—but it

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never reached its target. Even as it burst from the end of the rod, the rod of Reas was already in position, and a counter discharge met and deflected the discharge from the smaller man's rod so that both charges went upward.

"Very good," said Galyan. The discharge from both rods ceased, and both men lowered their rods and turned to face the High-born. Galyan reached out and took the rod from the small brown man and dismissed him with a wave back to his work.

"Now watch closely, Wolfling," said Galyan. He slid the black rod he held into a pair of loops on his own belt; and, as if in response to an unseen signal, the bodyguard Reas did the same with his rod.

"Now, as I say, observe," said Galyan softly. "Reas can draw at any time he wishes."

Reas stepped forward until he was less than an arm's length from the seated High-born. For a moment he stood completely motionless, then he looked off into a corner of the room; and at the same moment his hand flashed toward his belt.

There was a sudden sharp *click!* Galyan's arm was extended, and the rod in his hand was holding the rod of Reas in half-drawn position from its belt loops. Galyan chuckled softly, and released the pressure he was putting with his rod against the other's. He handed his rod back to Reas, who took them away.

"You see?" said Galyan, turning to Jim. "Any High-born has faster reflexes than any single human of any of the other races of man. Let alone wild men like yourselves. That was why in going after rods as Mekon did, he was intending to force you into a duel that you had no chance whatsoever of winning. As I say, we are true aristocracy. Not only are my reflexes faster than those of Reas, but my memory is better, my intelligence is greater, my discernment and perceptions are sharper than those of any other human being—yes, even among the High-born themselves. But, in spite of that, I employ more of the Low-born than any of my fellow High-born. I have many things for them to do and I keep them busy at it. Do you wonder why I do this, when I myself could do any of these things better, by and for myself?"

"I'd assume," said Jim, "for the simple reason that you can't be in two places at once."

Galyan's eyes glowed with a new intensity.

"What a brilliant Wolfling it is!" he said. "Yes, other men are useful to me, even though they are inferior. And it strikes me, just now, that maybe you and that little tool of yours with which you damaged Mekon, might one day be useful to me, too. Are you surprised to hear that?"

"Not after you spent this much time on me," said Jim.

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Galyan rocked himself softly on his cushion, holding to his knee.

"Better and better," he murmured. "This Wolfling has a brain—raw gray matter, of course. But a brain, nonetheless, I wasn't wrong. Yes, I may have a use for you Wolfling—and do you know why you'll be useful to me when the time comes?"

"You must plan to pay me, some way or another," said Jim.

"Exactly," said Galyan. "We High-born do not show our age, so I'll tell you right now, Wolfling, that while I'm by no means into middle age, as we know lifetimes, still I'm not a raw youngster anymore. And I've learned how to get members of the lesser human races to work for me. I give them whatever they most want by way of reward and payment."

He paused. Jim waited.

"Well, Wolfling," said Galyan, after a minute, "what is it you want most? If you were not a wild man, I wouldn't have to ask you. But I don't know Wolflings well enough to know what they want. What do they want most?"

"Freedom," said Jim.

Galyan smiled.

"Of course," he said. "What all wild beasts want—or think they want. Freedom. And in your case, freedom means the right to come and go, doesn't it?"

"That's the basis of it," said Jim.

"Particularly the right to go, I should think," murmured Galyan. "No doubt you never stopped to think of it, Wolfling, but it is simple fact that once you have been taken in by us to the Throne World, you would have no way of ever going back to the place where we first found you. Did you realize that? That, once you joined us on this trip to the Throne World, that you would never be able to go home again?"

Jim stared down at him.

"No," he said, "I hadn't planned never to go home again."

"Well, that's your situation," said Galyan. He lifted a slim forefinger. "*Except* if you turn out to be useful to me. If you should turn out to be useful to me, I might see to it that you got home again."

He let go of his knee and rose suddenly to his feet, towering over Jim.

"I'll send you back to Ro now," he said. "Carry that thought I've just given you away with you. Your only hope of ever seeing the world from which you came again, is if in some way you p'ease me."

The High-born made no further movement—but abruptly, Jim found himself back in the glass-walled room with the other pets. Ro was crouched at one end, weeping over the body of one of the felinelike creatures. It was not the one who had been among the pets, because that one now stood, whining anxiously just out of reach of the tearful girl. It was another one that lay dead—and it looked rather

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as if it had been cut almost in half by a thunderbolt.

IV

Jim went to the girl. She was not aware of his presence until he had reached down and put his arms around her. She looked up, startled and suddenly stiff—but then, when she saw who it was, she clung to him.

"You're all right. At least, you're all right—" she managed to get out.

"Where did this come from?" asked Jim, pointing down at the dead feline.

The question started a new burst of emotion. But gradually the story began to come out. She had raised this feline, as she had raised the other one that was one of the pets. This feline had been given to Mekon by Afuan, some time back; and Mekon had taught it to attack on command.

"But it was all right when I saw it last," said Jim. "How did this happen to it?"

She drew back a little from him and stared at him, shakily and with surprise.

"Didn't you hear?" she asked. "Afuan left it up to Galyan to fine Mekon for what he'd done. Galyan decided that the fine would be—" she choked and could not go on, pointing at the animal.

"It's a strange sort of fine," he said slowly.

"Strange?" she looked up at him, puzzledly. "But it's just the sort of fine that Galyan would exact. He's a demon, Jim. Where somebody else, operating on the Princess's orders might have fined Mekon one of his favorite servants, or something else he valued, Galyan chose this poor animal instead—because along with losing it, of course, Mekon's going to lose a point. Oh, not a Lifetime Point. Galyan's too clever to be that hard on someone like Mekon. But it'll be at least a one-year point. And Mekon has enough points against him already, Lifetime and otherwise, so that he can seriously worry from time to time about some kind of an accident that might bring him up to the level of banishment."

"Banishment?" asked Jim.

"Why, of course. Banishment from the Throne World—" Ro caught herself suddenly, and wiped her eyes. She stood up straight, and looked down at the body of the dead animal at her feet. Immediately, it vanished.

"I keep forgetting you don't understand things," she said, turning to Jim. "There's so much I'm going to have to teach you. All the Highborn play points. It's one game that even the Emperor can't overrule; and too many points mean you have to leave the Throne World forever. But I'll explain it all to you, a little later. Right now I'd better teach you how to move from room to room—"

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But Ro's words had triggered a new train of thought in Jim's mind.

"Just a second," he said. "Tell me something, Ro. If I wanted to step back into the city right now on an errand before the ship leaves, could I do it?"

"Oh!" She shook her head sadly at him. "I thought you at least knew that. The ship left that outworld world we were on some time ago. We'll be at the Throne World in three ship's days."

"I see," said Jim, grimly.

Her face paled abruptly, and she caught his arms with her hands, as if to keep him from stepping backwards from her.

"Don't look like that!" she said. "Whatever it is, you shouldn't look like that!"

Jim forced his face to smooth out. He put away the sudden fury that had exploded inside him. He forced himself to smile down at Ro.

"All right," he said. "I promise you I won't look like that."

Ro still held him by the arms.

"You're so strange," she said, looking up at him. "So strange, in every way. What made you look like that?"

"Something Galyan said to me," he answered. "Something to the effect that I could never go back home again."

"But . . . you aren't going to go back home!" said Ro, a little wonderingly. "You've never seen the Throne World, so, of course, you don't know. But no one ever wants to leave it. And the only ones who can stay are the High-born who can keep their point levels down in the Game, and their servants and their possessions. Not even the Governors of the Colony Worlds can do more than visit the Throne World for short periods of time. When their time is up they have to leave. But the High-born, and people like you and me—we can stay."

"I see," he said.

She frowned down at his arms, which she still held. Her fingers were feeling them through the sleeves of his jacket.

"You're as hard-muscled as a Starkien," she said, puzzledly. "And you're so tall for someone who's not High-born. Was it natural for you to be this tall, back on that wild world you came from?"

Jim laughed, a little shortly.

"I was this tall when I was ten years old," he said. The look of slight incomprehension on her face made him add, "That's halfway through my normal growing period."

"And you stopped growing, then?" Ro asked.

"I was stopped," he said, a little grimly. "Some of our medical practitioners ran a lot of tests on me because I was so big for my age. They couldn't find anything wrong; but they put me on an extract of the pituitary gland to curb my growing. And it works. I stopped

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growing—physically. But I went on growing, otherwise."

Jim interrupted himself, abruptly.

"Never mind that," he said. "You were going to show me how to move around the ship, from room to room."

"That . . . and other things!" Suddenly, she seemed to grow several inches in front of him; and something came into her that was like the cold imperiousness of Princess Afuan. "They can take my animals and give them away or kill them—but they're not going to hurt you. When I get through with you, you'll know more than enough to survive. I may be a throwback; but I'm as High-born as any of them. The Emperor himself can't dismiss me without cause from the Throne World; and everything that is a High-born's, by right is mine! Come along, and I'll begin to show you what it's like to live among the High-born and be a citizen of the society of the Throne World!"

She took him first to a section of the ship he had not yet visited. It consisted of a large, high-ceilinged, metal-walled room, with one wall covered with the rays of blinking lights of various colors. Tending this wall was one of the short brown men with long hair down his back. He was, Jim discovered, all that the ship possessed in the way of a crew—in fact, he was not even that. In actuality, he was nothing more than a standby engineer; on hand in case of the unlikely chance that some small repair or adjustment needed to be made to the ship's mechanism.

The ship, in fact, ran itself. It not only ran itself, it supplied the motive power for all the transfers of people between rooms, and everything else in the way of visible and invisible equipment aboard. Like some huge robot dog, it responded immediately to the mental whims of the Princess Afuan; and, to a lesser extent, it stood ready to accommodate the whims of everyone else aboard.

"Now," Ro instructed Jim, "simply stand here, and relax. Let it make contact with you."

"Make contact with me?" Jim echoed. He assumed that she was talking about something like telepathy; and tried to say so—but found he had no word for it in the Empire language. Ro, however, understood him; and to his considerable surprise launched into a complete and highly technical explanation of how the ship worked. In brief, it was simply that the ship studied the electrical activity of an individual brain, from this it drew up what amounted to an individual electrical code for whatever the person was thinking or doing. Thoughts which were visualized clearly enough, Ro explained, triggered off motor sub-activity in the body—in short the body physically responded at a very low level

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to the scene it was imagining as if that scene were real. The ship then matched these responses with the proper scene; and shifted the person to the scene by literally disassembling him at his present position and reassembling him at the location of the imagined scene.

The process by which the ship crossed light-years of empty space was this same method of disassembly and reassembly, only on a larger scale. That is, the whole ship and its contents was disassembled and reassembled farther along its line of passage. There was a certain limitation to the distance over which one of these shifts could take place; but since each shift took place at computer speeds, the effect was exactly like that of translight velocities without effort.

". . . Actually," wound up Ro, "the ship really never moves at all. It simply changes the coordinates of its position—" And she went off into an explanation too technical for Jim to follow.

Nonetheless after a little practice at visualization, Jim felt that same sensation of a feather tickling the surface of his mind, that he had felt when Ro had asked him to visualize the warehouse in which his frozen bulls were stored. The first time it happened, he moved from one end of the room he was in to the other. But within minutes, he had mastered the knack; and was easily shifting from room to room about the ship—although he was restricted to those rooms which he had once seen.

Ro took him back to her quarters, and the social aspects of his education began. The achievements of the next few days before they landed on the Throne World, surprised both of them. Jim was startled to discover that Ro, like all of the High-born, possessed literally vast stores of education covering both the scientific and social aspects of every facet of her ordinary life. It was like her knowledge about the ship. Never in her life would she be called upon to do so much as pay attention to the pattern of winking lights on a ship's control board. But, if necessary, she could have built the vessel from scratch, given the necessary tools and materials. Ro, on the other hand, was amazed to discover that she only had to tell Jim things once.

". . . But are you sure you remember that?" she kept interrupting herself to ask Jim. "I never heard of anybody but a High-born who didn't have to work to remember things."

Jim would respond by quoting the last few paragraphs she had said word for word. Reassured, but not really convinced, she would plunge into further detail; and Jim would continue to soak up knowledge about the Throne World, the society of the High-born, and the Empire which Throne World and High-born together ruled.

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The picture of it all was beginning to click together for him, as a coherent shape finally emerges after a certain critical number of the pieces of a jigsaw puzzle have been put together. Curiously, the High-born were not direct descendants of those natives of the Throne World which had gone out to colonize the other inhabited worlds of the Empire. They, who now were not merely but in theory, rulers of the Empire, had actually come into that position of authority by being weak, rather than strong.

It was true that in the beginning the Throne World had tried to keep control of the other worlds it had colonized. But this attempt was soon defeated by the time and space intervening between it and them. Very quickly the newer worlds became autonomous; and by the time, several thousand years later, that the Empire had pushed outward in all directions, until it came to areas where there were no stars with habitable planets within any further reasonable distance, the Throne World had been all but forgotten, except as a birthplace of the human expansion among the stars.

However, even before that expansion had reached its limits, the older colonized worlds had begun to see the advantage of some general organization. Some nominal authority and center point which could act as a clearing house for scientific and other developments achieved on other worlds than their own. The Throne World therefore had been revived by common consent, and set up as a sort of world-wide combination library and information center. That—though no one knew it at the time—was the beginning of the High-born.

To the Throne World, in its new role, drifted inevitably the better academic and inventive minds of the Colony Worlds. Here, was the intellectual hub of the human universe. Here, therefore, it was most profitable to live—not only in terms of practical reward for intellectual labors, but in the matter of intellectual companionship and access to new information in one's field, as well.

During the next few thousand years this immigration reached a point, where it had to be restricted by the Throne World itself. Meanwhile, the Throne World, by virtue of being the source of supply for most technological advances, had become both rich and powerful in comparison to the colonial worlds. Its intellectual population was already developing into an elite, added to only sparingly by the best minds of the colonial worlds, and eagerly served by inhabitants of the colonial worlds who were not qualified to join the elite, but greatly desired to live among the mighty.

Eventually, during the last ten thousand years or so, during which the Empire had not only remained

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static, but had indeed shrunk its borders slightly, the Throne World elite had indeed become High-born —with special breeding controls which gave them the physical marks of their aristocracy. The onyx white skin, the lemon yellow eyes, the white hair and eyebrows and eyelashes—all these, Jim learned, were not developed out of any other necessity than to place the badge of superiority upon those who ruled the Empire from the Throne World. Instead of badges or escutcheons to mark their aristocracy, they had given themselves outsize bodies and minds, at the same time ensuring that none who did not belong to their elite could compete with them as individuals. They still gleaned the geniuses, the unusually capable from among what they called the lesser races of man; but that gleaning was highly selective now and those gleaned did not so much enter the elite, themselves, as acquire the chance that through inbreeding their great grandchildren would be one of the tall, white-haired, onyx-skinned masters of the Empire.

". . . You see," Ro said, at last to Jim, when they had finally reached the Throne World, and were preparing to leave the ship, "there's a chance—even for a Wolfling like you. Oh, they'll try to tear you down, all of the High-born; once they begin to suspect that you want to become one of them. But, if you're educated and ready, they won't be able to do it. And with my help, we'll see they won't!"

Her eyes gleamed with triumph. Jim smiled at her; and turned the topic of conversation to what he might expect next, once they left the ship.

She looked suddenly sober.

"I don't know," she said. "Afuan doesn't tell me. Of course, she'll want to show you off to the Emperor, as soon as possible."

With this answer in mind, he was consequently at least partly prepared when, an hour or so after the ship had landed on the Throne World, his own room aboard it suddenly vanished around him and he found himself standing in an arena. His luggage was at his feet; and facing him was a complete *cuadrilla—banderilleros, picores,* costumes and horses and all—an exact duplicate of the *cuadrilla* he had used back on Alpha Centauri III, with the exception that the men in the costumes were all of the breed of short brown men with long straight hair.

"These beasts are artificial," said a voice beside him. He turned and saw Afuan, standing a few feet from him. "That will include the bull with which you'll be practicing. Both the artificial beast and the men have been set to repeat exactly what you did the time we watched you before. Simply keep them doing it until they learn how."

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The Princess vanished. Apparently she considered that she had said all that needed to be said.

Left alone with his imitation *cuadrilla* and their mechanical horses, Jim looked around him. The arena was an exact duplicate of the huge arena in which he had fought the two bulls on Alpha Centauri III—except that it had been cleaned up to an almost ridiculous degree.

The stands of the arena, which on Alpha Centauri III had been of some brown, concretelike material, seemed here to be made of white marble. Everything was white, everywhere—even the sand on the floor of the arena was as white as snow.

Jim bent down, opened one of his luggage cases, and took out the large cape, the small cape and the sword. He did not bother to take out his costume. He closed the luggage cases and put them behind one of the *barreras.* Music suddenly began, eminating from some unknown source. It was the right music; and moving with it, Jim lined up before his *cuadrilla* and began the slow walk across the ring toward a section of seats outlined in red that was plainly the Imperial box.

From Jim's standpoint, it was almost eerie. The long-haired little brown men moved through their motions, not only with professional certainty, but in exact imitation of the men he had left behind on Alpha Centauri III. Even small, useless, personal actions were copied. Evidently all these had been remembered either by Afuan, or someone else of the High-born, and faithfully fed into whatever programming was controlling the men who were now playing their parts with the bull. Where a man had leaned upon a *barrera* during an inactive moment, his duplicate here on the Throne World copied the pose exactly, on the equivalent *barrera,* and to an inch of the spot equivalent to where the original had placed his elbows. But the eerieness of duplication grew even stronger when Jim went out to work the bull himself, with the large cape. For, the duplication was doubled. There was even a sort of wry humor to it, thought Jim. The High-born had produced an imitation bull, programmmed to exactly follow the motions of the live bull they had watched, but which they did not know had also been programmed by the biological sciences of Earth to go through exactly those same motions.

They carried through the whole business to the moment of the kill. When Jim's sword went in, the mechanical creature obediently collapsed, exactly as the real one had done, back on Alpha Centauri III. Jim looked around at his pupils, wondering if it was time to stop; but they seemed quite rested and evidently were expecting to continue.

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It was the second time through the whole pantomime, that Jim began to spare attention from his own work with the imitation animal, to study the actions of the men he was training. For the first time, he noticed that, although they moved with a great deal of sureness, there was a certain amount of clumsiness in their efforts. It was not a clumsiness of the mind as much as of the muscles. These men were doing what they had been programmed or instructed to do; doing it promptly and well. But the instinctive responses of their bodies were not yet there.

Jim ran through the complete performance two more times before calling it a day. By that time, although his own responses to the artificial animal had become automatic and without tension, he himself was thoroughly tired. Still, on the succeeding four days, he continued to run through the bullfight as it had happened on Alpha Centauri III; until the responses of the small men with the long hair began to be not so much a matter of programming as of experience and natural reflex.

It was somewhere along in this period, that he discovered that he could vary the actions of the bull by the same sort of deliberate mental imagery that Ro had taught him to use aboard the ship. Somewhere aboard the Throne World, there was a master power source performing the same function for him with regard to the bullring, that its counterpart had provided aboard the ship. Therefore, on the sixth day, he introduced his new *cuadrilla* to a different version of a bullfight.

The truth of the matter was, each of the bulls in cryogenic storage that he had brought with him, had been programmed differently—just in case it should be suspected that they had been programmed at all. Jim himself had rehearsed each set of programming. Now he put his new assistants to work in the pattern they would encounter with the last bull in cryogenic storage. He used the last bull advisably, hoping either that he would never have to use it in actuality, or that his makeshift *cuadrilla* would have forgotten its specific and unvarying actions, if he did have to use it.

During all these days, he had discovered that he had what appeared to be a suite of rooms in some endless, one-story structure. Unlike the rooms aboard ship, the rooms here on the Throne World had doors and corridors; moreover he seemed free to wander about at will, which he did. But though he explored outward from his rooms through a number of other parts of the building, across open courtyard and through gardens, he encountered no other High-born and only a few other men and women of what was clearly the lesser races —obviously servants.

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Ro had not come near him. On the other hand, Afuan had appeared several times, inquired briefly as to how the training sessions were coming along, and disappeared again. She showed neither pleasure nor impatience with the time he was taking; but when the day finally came that he told her he judged his trainees were ready her reaction was prompt.

"Excellent!" she said. "You'll put on a show for the Emperor, then —within the next day or two."

She disappeared; to return briefly the following morning and announce that the bullfight would take place in the arena within a certain span of the Imperial time scale roughly equivalent to about forty minutes.

"I can't get one of my bulls thawed and revived that quickly," Jim said.

"That's already been taken care of," Afuan answered; and disappeared again. Jim began rather hastily to get into his suit of lights. Theoretically, he should have had an assistant help him to dress; but there was no choice for it. He had managed to struggle into about half the costume, when the humor of it struck him. He laughed out loud.

"Where are you when I need you, Ro?" he asked the bare white walls of his room, humorously. To his utter astonishment, Ro suddenly materialized before him as if she had been a genie summoned from a bottle.

"What do you want me to do?" she demanded.

He stared at her for a second; then laughed again.

"Don't tell me you heard what I said?" he asked her.

"Why, yes," she answered, looking a little surprised. "I set up a notice to let me know if you ever called for me. But you never did."

He laughed again.

"I'd have called you before this," he said, "if I knew that was all I had to do to get hold of you."

He was treated to the sight of one of her astonishing blushes.

"I wanted to help you!" she said, "But you didn't seem to be needing any help."

At that, he sobered.

"I'm afraid I'm not in the habit of asking for it, usually," he said.

"Well, never mind now!" she said, energetically. "What do you want me to do?"

"Help me into these clothes," he said. Unexpectedly, she giggled; and he stared at her in puzzlement.

"No, no. It's all right," she said. "It's just that that's the sort of thing a servant, a human of one of the lesser races, is supposed to do for a High-born. Not the other way around."

She picked up his hat.

"Where does this go?" she asked.

"It doesn't go—not yet. That's the last item," he told her. Obediently she put it down; and under his instructions began to help him into the rest of the costume.

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When he was fully dressed, she looked at him with interest.

"You look strange—but good," she said.

"Didn't you see me in the arena at Alpha Centauri III?" he asked.

She shook her head.

"I was busy on the ship—and I really didn't expect it to be too interesting." She stared at him with interest as he took his two capes and sword from the larger luggage case. "What're those for?"

"The pieces of cloth," he said, "are to attract the attention of the bull. The sword"—he pulled it a little way out of its scabbard to show her its blade—"is to kill him, at the end."

Her hand flew to her mouth. She paled and stepped backwards. Her eyes were enormous.

"What's the matter?" he asked.

She tried to say something, but the only sound that came from her throat was more of a little cry than an understandable word. He frowned, sharply.

"What is it?" he demanded. "What's wrong?"

"You didn't tell me—" The words came out of her, finally, in a sort of wail. "You didn't tell me you were going to *kill* him!"

She choked, whirled about, and disappeared. He stood staring at the space where she had been. Behind him, a woman's voice spoke unexpectedly.

"Yes," it said. It was the voice of Princess Afuan, and he, himself, turned sharply to find her standing there, looking at him. "It seems that even a Wolfling like you can make mistakes. I'd have thought you'd have learned by this time that Ro has a soft spot in her for all animals."

He looked at her, coldly.

"You're right," he said, flatly, "I should've remembered that."

"Unless—" she said, then paused, watching him with her lemon yellow eyes, "you had some reason for deliberately wanting to upset her. You've made quite a marked impression for a Wolfling, in such a short time. You not only made a friend of little Ro, but you made an enemy of Mekon, and interested not only Slothiel, but Galyan himself."

She considered him for a second with a close gaze that seemed to have something hidden in it.

"Do you see me?"

"Of course," he said. And then, he stiffened internally; although he was careful to keep his face and body noncommittal.

For, before his eyes Afuan suddenly changed. It was a strange changing; because no single thing about her that he could see altered in any way. Even the expression on her face was the same. But suddenly she was entirely different.

Suddenly, tall, onyx-skinned, yellow-eyed, white-haired as she was, she became attractive. No—not merely attractive—voluptuous to

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an almost overwhelming degree. It was more than merely a sensual attraction she projected. Her demand upon his capability of desire was almost hypnotic.

Only the long, solitary years of internal isolation and growth, allowed him to resist the fascination Afuan was now exerting upon him. Only the fact that he realized the lust she was trying to awaken in him meant an abandonment of all that he had searched for and won by lonely journeys of the mind and soul, where the mind and soul of man had never searched before—*only this allowed him to stand still,* relaxed and calm; unresponsive.

Abruptly, again without any physical sign of change, Afuan was back as she had always been. Cold and remote in appearance, striking, but not necessarily attractive by the human standards of Earth.

"Amazing," she said, a little softly, gazing at him through eyes which—though they were not slitted—gave the impression of being slitted. "Totally amazing—particularly, for a Wolfling. But, I think I understand you now, wild man. Something in you, at some time, has made you ambitious with an ambition larger than the universe."

After a second, Jim performed the mental exercise that transferred him to the arena.

When he appeared there, the stands were already full of the white clothed High-born. Not only that, but within the red bordered area that was plainly the Imperial box was a party of six men and four women. The music had already begun and Jim formed up with his *cuadrilla* for the walk across the white sand toward the Imperial box. As he got close, he saw that Afuan was one of the people in the Imperial box, seated to the left of someone who seemed to be Galyan, occupying the center seat with an unusually broad-bodied, older-looking High-born man to his right, with slightly yellowed eyebrows.

When Jim got close to the box, however he saw that the man who resembled Galyan, was not Galyan. Still, the resemblance was striking; and Jim suddenly remembered Galyan's comment about the Emperor being his first cousin. This, plainly, was the Emperor.

If anything, he was taller than Galyan, himself. He lounged in his seat more casually than the other High-born seated around him; and there was something—for a High-born—unusually frank and open and intelligent about his gaze. He smiled down at Jim as he gave permission for the bullfight to commence. Afuan's eyes looked coldly down at Jim, meanwhile.

Jim had eliminated the procedure of dedicating the bull to someone in the audience; and he did not revive the practice now. He returned with his *cuadrilla* across

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the ring and went directly into the bullfight. His men did well with the different behavior of the bull which Afuan, or someone else among the High-born, had apparently chosen to revive at random from among the six in cryogenic storage. Luckily, each bull was a little different; and Jim recognized the differences. So that he was able to adjust himself to the bull's pattern of behavior, the minute he saw it come charging into the ring.

Still in all, he had his hands full with it; as he had had his hands full in the arena on Alpha Centauri III. Moreover, what little space for thought he had was taken up with Afuan's comment about his ambition. Clearly, the Princess possessed a sense of perception that was very nearly deadly.

The bullfight continued, and drew eventually to its closing moments. This bull, unlike the one on Alpha Centauri III, remained strong right up to the predicted point in its programming. Jim finally went in over the horns with his sword for the kill almost directly in front of the Imperial box. Then, withdrawing his sword, he turned and took a few steps to confront the Emperor—as much from his own sense of interest in how the Emperor would respond to the spectacle, as for the reason that on the ship Ro had told him that approaching the Emperor afterwards would be expected of him. He walked up to the barrier itself and looked upward at a slant into the face of the Emperor, less than a dozen feet away. The Emperor smiled down. His eyes seemed to shine with an unusual brightness—although suddenly Jim noticed there was something almost unfocused about them.

The Emperor's smile broadened. A small trickle of saliva ran down from one corner of his mouth. He opened his lips and spoke to Jim.

"Waw," he said smiling all the while and staring directly through Jim, "Waw—"

To be continued

The Analytical Laboratory October 1968

PLACE	TITLE	AUTHOR	POINTS
1	The Tuvela (conclusion)	*James Schmitz*	1.3
2	The Pirate	*Poul Anderson*	2.5
3	Mission of Ignorance	*Christopher Anvil*	2.58
4	The Steiger Effect	*Betty Curtis*	4.1
5	Underground	*Lawrence A. Perkins*	4.31

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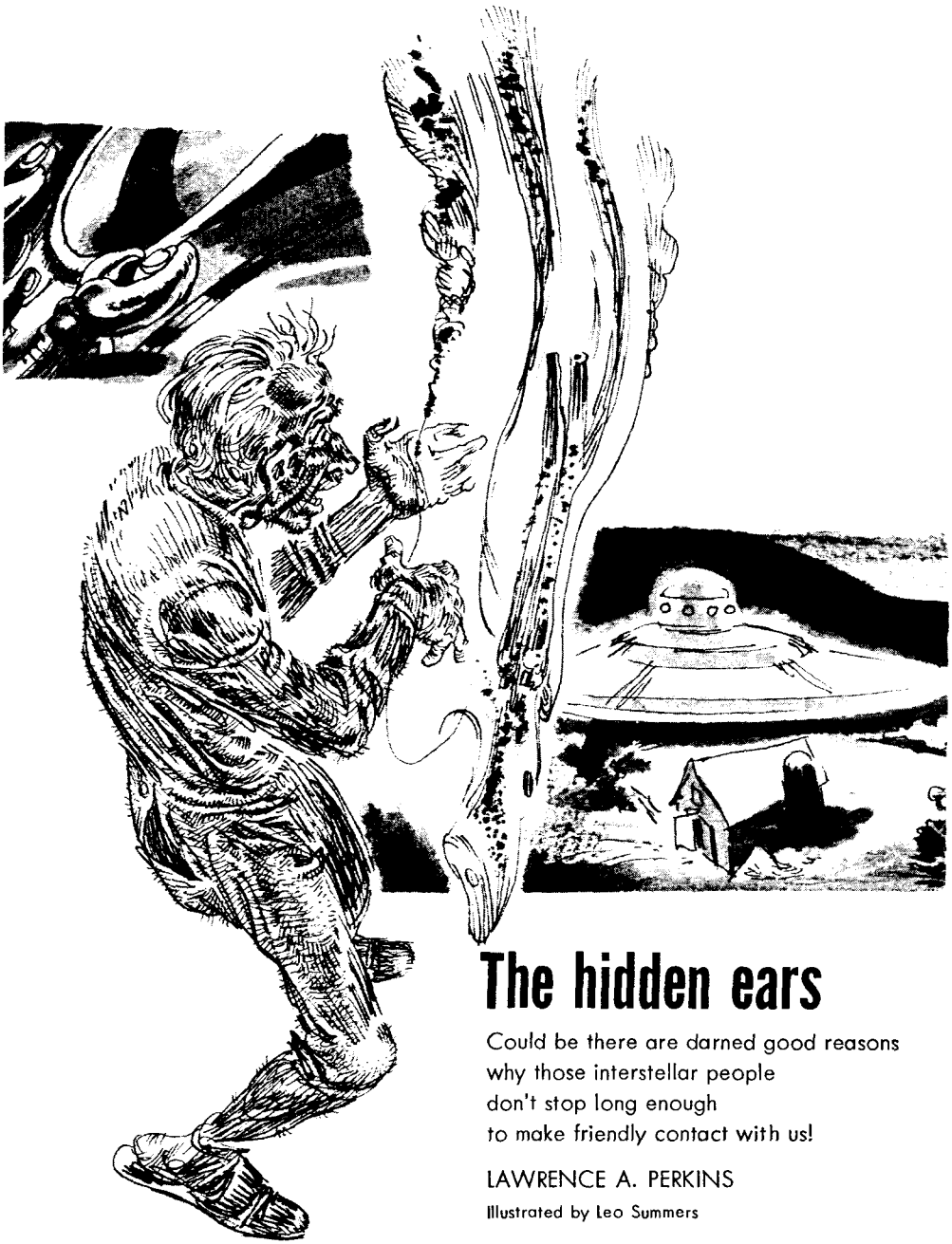

The hidden ears

Could be there are darned good reasons why those interstellar people don't stop long enough to make friendly contact with us!

LAWRENCE A. PERKINS

Illustrated by Leo Summers

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Still only half awake, Luke Harris shouldered his shotgun and fired again and again through his hastily opened bedroom window at the shimmering thing hovering in his back yard. The dogs that had waked him with their barking broke into a continuous, hysterical ululation. And Luke suddenly found his gun much too hot to hold. Cursing, he dropped it—and a moment later was frantically beating out a small fire.

Wide-awake now, Luke realized that everybody in the house was up. The shimmering thing was gone, the dogs were quieting down, and the fire on the floor was reduced to a cluster of stubborn embers. With trembling and scorched fingers he switched on his bedside lamp. Seventeen minutes past three, indicated his alarm clock.

"Pa? Is everything all right? Can I come in? *Pa?*"

"Sure, Son, sure. Come on in. Everything's all right, I reckon."

Gryth pom Vreanchwy glumly studied the report and then resignedly allowed it to slip from his manipulators and drift slowly to the deck. "I agree, Engineer Sim Ghulst. We've let one slip through!" With his right stunner he smacked the bulkhead a resounding blow. "What'll the next one try?"

Araad sim Ghulst set his facial carapace in an attitude of respectful sympathy. "Nobody could have expected us to catch this one inbound. This gang must have a master astronomer—and plenty of patience. They must have arrived at the outer limits of this system—maybe as far out as the most distant planetary orbit."

The commander's facial carapace expressed shocked outrage. "They couldn't expect us to set up a perimeter out there—could they?"

"Of course not! There's already griping about the money we spend now. Great Gleetch, think how many manned stations we'd need at that radius! And don't even mention automatics; no robot would have identified that gravitic pulse we just picked up. Whoever heard of a gravitic drive pulse?"

Aronth vod Thruand silently listened to the dialogue, his facial carapace registering total incomprehension. Eventually Pom Vreanchwy noticed him and immediately dipped his frontal ocular sensors in apology. "A Federation ship seems to have slipped through our net by riding garbage."

Vod Thruand's facial carapace was incapable of indicating more bafflement. "It did *what?*"

"This accursed system is full of streams of cosmic junk—broken-up comets, maybe even broken-up planets. One of these streams intersects our planet's orbit just as the planet reaches perihelion. For a hundred foobies or so, the junk actually reaches the planet; some of it even gets to the surface. The

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planet's satellite is full of impact craters. As a navigator, you possibly have noticed some of these things?"

Vod Thruand's facial carapace audibly shifted from puzzlement to outrage. "I've not only noticed them—I've charted them. Did you think I do nothing but watch you two listening for interdicted Federation activity? I've got to do something or turn into a vegetable." His carapace shifted to dismay. "And this isn't the place to turn into a vegetable."

"Sorry, I didn't mean to snap at you. But this situation is impossible."

"I still don't understand. What did the cosmic junk do?"

"Some renegade Federation astronomer must have been scouting this system out in the far reaches, out where we couldn't pick him up. He seems to have located a slot in the aphelion of the stream where a ship can enter and then ride it out and make it into the atmosphere of this damned planet without moving another molecule. Once the ship was in that slot, one miniburst of gravitic drive matched its velocity to the planet's."

Luke Harris and his teen-aged son Billy sat stubble-faced and half dressed around their dining table. Luke's widowed sister, Susan, sat nervously between them swathed in a wrapper, her hair in loose disorder and her face unfamiliar without makeup. Luke, his hands clumsily bandaged, sat at the head of the table, explaining what he had seen and done.

"I reckon I oughta call the sheriff," he concluded. "Oughta done it a'ready."

"Whatever for, Luke?"

"What for? Because I been trespassed on, yes, and shot at in my own home. That's what for!"

"You wasn't shot at, Pa. That gun of yourn is purely melted. I never heard of ary kind of bullet as melts down gun barrels. Whatever it was must of been aimed right squarely at you, but you never got so much as a scratch."

"Then what do you call this, hey?" Luke angrily waved his bandaged hands.

"Sure, Pa, sure. That's because you still had aholt of the gun you shot at the Saucer People with."

"Sakes alive, Billy, what do you know about Saucer People?"

"Golly, Aunt Susan, everbody knows about Saucer People! They watch over us and want to help us, 'cept the Air Force won't allow that there is ary such thing. But the Saucer People, they get through anyhow, and they purely want to give us all their great secrets. If you hadn't of shot at them, Pa, maybe we would even have got to talk to 'em."

"All I know is, I been trespassed on at three o'clock in the morning, and whatever it was has ruint my shotgun and durn near burnt down

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my house. Yes, I aim to call the sheriff right now, and I can't rightly say why it is I waited so long."

The buzzing stopped as Araad sim Ghulst quickly extended a manipulator to deactivate it. Gryth pom Vreanchwy silently set his facial carapace to indicate urgent desire for information. Hopeful that at last he would have something useful to do, Aronth vod Thruand extended his locomotors.

"I've got the computer set to monitor the electromagnetic frequencies that the locals use for audio communication. It watches for certain word combinations, and that buzzer sounds when it finds something. Everything recorded, of course. It's possible that I'll miss something, but we'd all go snarkly if we tried to screen it ourselves. Did you know that in this land mass alone . . ."

"The information, please," urged Pom Vreanchwy.

Sim Ghulst's facial carapace registered embarrassed obedience as he silently flipped various toggles. The control room was immediately filled with a voice speaking one of the major planetary languages. Sim Ghulst's left medial manipulator hesitated and then withdrew from the translator key; they all understood the original.

"Unit Five, Unit Five."

"Unit Five. Go ahead."

"Hank, we've got a call from Luke Harris, out on Elk Lick Road. About a mile from Bethany Baptist Church. Know where that is?"

"Luke Harris. That would be a brown house with a red tin roof, back off the road a piece?"

"That's right. If it wasn't Luke I wouldn't pay it no mind, but Luke swears a flying saucer just melted down his shotgun and damn near set his house afire. How about checking it out."

There was a pause, punctuated by two burps of static.

"Flying saucer on Elk Lick Road. Ten-four."

Sim Ghulst flipped a switch as recorded voice signed off. "This computer, together with its slaves in our Trojans, is programmed to monitor almost every police net on the planet, record everything for its own analysis, and then erase all negative records. So far I haven't been interested in what it saved, but this one sounds like a contact."

Pom Vreanchwy's facial carapace registered grave concern. "This recording means that your instruments really did pick up a gravitic drive. It also means that the ship is now inside the ionosphere of this damned planet. That makes it much harder to listen to."

"Nobody's ever tried a trick like that before," muttered Vod Thruand. "Riding the garbage!"

"Getting just one cargo of contraband away from this planet would make any being try almost anything, provided that he's a moral moron. That's why the Federa-

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tion picked our species for this watch duty. We seem to be the hardiest intelligent beings in the galaxy—if you admit that it's intelligent to get stuck with a job like this one."

Vod Thruand nervously opened both of his powerful pincers and absently snapped them shut. "Can you get me a fix on that planetary transmission?"

Sim Ghulst waved a pincer at a print-out slip from the computer. "Already got it."

Aronth vod Thruand seized the slip and then remembered that there is such a thing as protocol. "Commander, what should we do now?"

"The first thing would be to check out those coordinates." The commander turned. "Sim Ghulst, assuming that being, Luke Harris, actually sighted a Federation ship, where do you believe that it is now?"

"It must still be on the planet. We have the finest listening apparatus in the galaxy. Using only a millifooby of gravitic drive is unheard of—we're not set to pick up such a thing—and yet we got it. If it had left, we'd have picked up something. Leaving usually is a lot noisier than arriving."

"So it's still on the planet. But *where* on the planet?"

"Well, there's still some time before local sunrise in the general region where that message came from. The Federation ship, if there really is one, knows that we're out here somewhere, listening. If it has any monitors at all, it picked up that police broadcast and knows that now we're watching and listening with everything turned on."

"My question, Engineer?"

Sim Ghulst's facial carapace again registered embarrassed obedience. "My educated guess would be that the thing probably went to ground somewhere quite close to the place where the being Luke Harris, saw it—although I can't imagine why it would behave that way."

"I can," volunteered Vod Thruand. "Like I said, I'd have gone snarkly with nothing to do but map this unspeakable planet. I've been charting what the commander calls cosmic garbage streams. They have orbits, of course, and relating them to the orbit of this planet was a challenge."

"So?" urged Sim Ghulst.

"So the stream that our renegade arrived in is a tight system. By the way, its orbit doesn't go to the limits of the system, but it does go out a little farther than the orbit of the biggest planet—and at an orbit inclined 72 from that of this one. No wonder that we missed it."

"That makes sense," Sim Ghulst agreed.

"But once the renegade gets here, it must make planetfall—possibly by parachute or parasail as far into the atmosphere as possible

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to keep us from picking it up. Once on the surface, the crew has to locate a good stock of the contraband vegetable, stow it safely in its cargo holds, and then replenish water, air, and maybe food. The crew could never do all that in time to get back into the garbage stream."

"I don't follow you," complained Sim Ghulst.

"Look. If a freighter wants to pick up, say, a load of thorium ingots, somebody can have them all stacked up ready to load, shielding and all. But when the cargo's a contraband vegetable that the smuggler has to find for himself—it won't be growing now, but the local beings store the product—it just has to take more time. My guess is that the Federation ship is hiding while the crew secures the cargo."

"The cargo being what it is," Sim Ghulst remarked, "it may take the crew quite a while. What a pity that we can't just sterilize the planet and end this sort of thing for good."

Vod Thruand's facial carapace expressed shock. "You can't mean that! This planet is occupied by intelligent beings! It's not their fault that a large part of the vegetation that they grow for food happens to be the most habituating euphoric in the galaxy for the rest of us. One whiff, and you're a lifelong addict."

"It might be something of a euphoric for them, too, although evolution probably has given them some degree of immunity," the commander added. "They're the most defenseless form of intelligent life ever discovered, and at the same time the most violent. At least twice they've wiped out their entire civilization and begun fresh with only rocks and animal bones as tools. But we're not letting Vod Thruand tell us his guess."

"Like I said, I don't expect it to lift off now. But there's another cosmic garbage stream that intersects this planet's orbit in about eight vrunks—that's fourteen planetary revolutions, by the way. It's a smaller stream, but it would serve. My guess is that the renegade will rise into the stream by rockets—which make no electromagnetic noise—and then with another pulse of gravitic drive assume the garbage orbit."

"Where we'd never find it." Pom Vreanchwy's facial carapace sagged in dismay. "We really don't dare let this one get away. If this trick should ever catch on . . . Great Gleetch!"

"That gives us eight vrunks to find and destroy it. No, not even that long." Sim Ghulst snapped his pincers in frustration and dismay.

"And we don't even know exactly what we're looking for," Pom Vreanchwy added.

"We know that it must be big enough to carry a profitable load of contraband and small enough to pass for a chunk of cosmic junk." Vod Thruand faced the commander. "Why don't I send down a probe

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and just see what we can find out?"

Pom Vreanchwy's facial carapace registered doubt. "With the local beings fully alarmed?"

"They usually don't stay alarmed. If there's any sign of activity, I can always snatch the probe back. The local beings can't detect gravitic drive, and a probe won't trigger any other watch device. The probe is very small, not likely to be directly sensed by the local beings—especially at night."

Pom Vreanchwy wordlessly snapped a pincer, his facial carapace signaling agreement.

Presently the three watch officers crowded around a visual display screen on which could be seen an isolated clump of buildings typical of what the local beings called a *farm*. Audio sensors transmitted distant industrial noise from various types of planetary vehicles, but the psychio image was distressingly blank. Occasional mind pictures rippled vaguely, but not even the intelligent beings of this planet had developed effective telepathy.

"Can you bring it in a little closer?" asked the commander.

Vod Thruand manipulated knobs and switches, and the clump of buildings jerkily filled the screen.

"This must be the place." Sim Ghulst waved a manipulator at a circular hole in the roof of one of the buildings. "They must have done that with a magnetic exciter." He snapped a pincer. "And the being, Luke Harris, must have aimed his iron weapon at them just then! These guns of theirs are made of iron and iron compounds. No wonder it melted!"

"What is it?" demanded Pom Vreanchwy.

"The building with the hole in the roof? That's what the local beings call a *barn*. Draft animals are housed there, and goods and tools of various sorts are stored. It may be . . ." Quickly he manipulated controls, and the visual image of the hole filled the screen as the probe dropped lower.

"What is it?" demanded Pom Vreanchwy again.

"What I thought. This compartment was filled with the contraband vegetable. The raider sucked it up, stripped out the part that contains the euphoric, and dumped the rest of it back. I imagine that right now he's busy compacting what he kept into a mass that he can squeeze into his cargo hold. Gleetch, I wish this probe had armament! I'd like to destroy this structure to keep the local beings from getting ideas."

"They'll get ideas anyhow. They always do when something like this happens," gloomed Sim Ghulst. "But nothing ever comes of it. At least we definitely know now that there's a renegade on the planet."

Vod Thruand's facial carapace registered hopeful optimism. "There are only so many places on a densely inhabited planet like this

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one where a renegade ship can hide."

But three vrunks later, Vod Thruand's optimism had worn thin. "If only we could ask the local beings to help us!" he mourned. "They have a fair technology and a lot of organization."

"They have a planetary police network of sorts, too," snapped Pom Vreanchwy. "But, of course, we can't contact them. Not even the renegades contact them."

"Why not?" said Vod Thruand.

"Well, the renegades don't dare. Their chances of getting caught are already great enough without broadcasting their location to us. Other Federation ships—well, we still hope that the local beings will develop enough background telepathy to be able to integrate with each other. As soon as they do that, they'll be eligible for membership."

Vod Thruand's facial carapace indicated that he was still waiting to be convinced.

"If we let them know that there's a Galactic Federation from which they're barred until they evolve further—and evolution is an essentially involuntary process—we'd destroy them as surely as if we were to wipe them out with a barrage of fusion explosions."

"There has to be a way," groused Vod Thruand.

At that moment an alarm sounded and several purple telltales on the engineer's console lit up. The navigator and the commander faced their fellow officer with wordless hope and expectation. Had the renegade revealed himself?

"No such luck." Sim Ghulst busily flipped toggles and adjusted knobs only to light up a few more telltales. "That alarm meant that we've just lost contact with one of our Trojans."

Vod Thruand's facial carapace shifted from delighted surprise to perplexed curiosity.

"Normally we ride with each of our Trojans set in one of the Trojan positions respective to the satellite of this planet—one of them sixty degrees ahead of it, and the other one sixty degrees behind. In a way, we're doing the same thing the renegade did—we don't dare set up an installation on the satellite itself because the local beings might find it there."

"But?" urged Vod Thruand.

"With the Trojans flanking the planet's satellite, we normally ride the same orbit on the other side of the planet. That way, we have the whole planet under constant observation at all times. But the central star perturbs their orbits. Normally I check them once a vrunk and correct their orbits as necessary, but now I've got everything focused on the problem of locating the renegade—and we just lost tight-beam contact with a Trojan."

Perplexed curiosity turned to alarm. "How bad is that?"

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Sim Ghulst twiddled one more knob and then brought down a manipulator violently on a control bar. Instantly the entire configuration of telltales changed. "Not really bad, but a nuisance. Now I've got to use open broadcast, and the renegade'll hear it and know exactly where we are. But the Trojan —I'll query it, and when it answers, our directionals will spot it."

"The same way you spotted the smuggler's gravitic drive pulse?"

Sim Ghulst's left medial manipulator hovered over a purple button. "Not really. What I picked up was the electromagnetic disturbance of the drive. We've got dozens of special sensing devices in addition to the gear that you use for navigation. That's why the Federation assigns just one ship to this watch detail. What I'm doing now is forcing the Trojan to send a nondirectional . . ." The engineer's facial carapace suddenly blanked.

"What's the matter? Araad sim Ghulst, what's the matter?" The navigator's facial carapace registered extreme alarm.

"Nothing's the matter. I think I've just solved the problem. Every interstellar ship carries a Ted Bruand mass detector, right?"

"Why, of course."

"And one of the major components of the detector is a resonant cavity, right? Tuned to a standard frequency of twenty-five gigacycles, right?"

"What are you getting at?"

"And it works automatically whenever it approaches within one fooby's travel time of any object large enough to damage a spaceship on impact, the actual mass and distance of the triggering object determined automatically by the ship's velocity, right?"

Vod Thruand carefully backed away from the engineer.

"Don't you see it? Of course the renegade's navigator will have disconnected the input to his mass detector. But the thing itself can't be turned off, any more than a star can be turned off."

Commander Pom Vreanchwy snapped his pincers. "Do you mean what I think you do?"

"I mean that if we can modify this query circuit to broadcast a twenty-five gigacycle pulse—and our directionals to receive it—we should pick up an echo. Vod Thruand, if you'll help me get this cover plate off . . ."

The neatness of the cabin had gradually yielded to a tangled mass of wires and wave guides before Araad sim Ghulst wearily dropped a polystyrene tuning wrench and announced, "That should do it."

The commander tugged a purple lever on his main console and a series of telltales flashed on and then began winking from orange to purple. "Ready," he presently announced. "Key your probe, Engineer."

Tensely Araad sim Ghulst manipulated a purple button. Instantly a

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buzzer sounded and a purple dot flicked on a display of the planetary area above which the ship hovered.

"By Gleetch, it works!" breathed Aronth vod Thruand, keying his console so that the area where the flash had appeared swelled toward the center of the display. "Again!" he ordered.

The purple dot flashed brightly, and this time the site could be identified as a certain bend in a meandering river. The commander's manipulators flew over the console and a ruby-red beam lanced downward to that river bend. It was answered by a burst of light so bright that the display dimmed momentarily to prevent overload.

"Got it!" said Gryth pom Vreanchwy superfluously.

For the dozenth time, Luke Harris wandered out to his barn to gaze up at its roof. Billy had been up on a ladder to inspect the damage—a charred hole almost sixteen feet in diameter, perfectly round and precisely over the corn crib. And the crib, which yesterday had been full of winter-dried ears of ripe corn, was now heaped high with only golden kernels. Yesterday those kernels had been firmly attached to cobs which were now inexplicably missing.

"Now whatever would a body go and do a thing like that for?" marveled Luke Harris. ■

IN TIMES TO COME

Anne McCaffrey—who won the Hugo award for her Dragon stories in Analog—is going to be with us again next month, but not the dragons. (She's working on a sequel to "Dragonrider," but it's a long, hard, slow job to construct a tightly built novel!)

This one is "A Womanly Talent." Given that some people sometimes display some inexplicable and scientifically "impossible" (a scientific term meaning: "it doesn't fit any of the laws I know, and, therefore, can not exist") talents, how could they be studied for discovery, if possible, of the yet-unknown laws involved?

First, collect some who do display occasional flashes in a colony, where they can give mutual encouragement—and then monitor them. *And use them!* Even occasional spurts of precognition—telekinesis—whatnots—can be useful.

But while men have, down the ages, been the ones who, at the physical level, did the major lifting, moving, and forecasting—women are primarily engaged in a different type of task.

As Anne points out in a distinctly off-beat approach to psi!

THE EDITOR

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The humanists-politicians are used to gaining power by moving people their way—but this time the scientists appeared to be moving people in a more irresistible way. Whole continents of 'em.

TED THOMAS

Illustrated by Kelly Freas

the other culture

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". . . And the name 'Weather Bureau' continued to be used, although the organization itself was somewhat changed in form. Thus the Weather Congress consisted of three arms. First was the political arm, the Weather Council. Second was the scientific arm, the Weather Advisors. Third was the operating arm, the Weather Bureau. All three arms were relatively independent, and each . . ."

THE COLUMBIA ENCYCLOPEDIA, 32nd Edition
Columbia University Press

Jonathan H. Wilburn sat at his desk in his office and tapped his fingers on the glazed walnut top. The impossible day had arrived. He shook his head. So quickly had it come that even the most pessimistic predictions had been too liberal. The needs of the peoples of the world for rainfall had finally grown so great that there was not enough rainfall to go around. The Weather Congress must now face the impossible task of allocating rainfall around the world. Wilburn was too wise a politician to think that the Congress was going to be able to do a good job of it. There would be years of turmoil and heartache ahead, years in which continents and nations and counties would be dissatisfied with their water allotment. The pressures on the Weather Council, the political arm of the Weather Congress, always great, would now grow to far greater proportions. Wilburn sighed. It *would* have to happen during his terms as president. It would be nice if . . . He shrugged off the wave of self-pity. He had sought this job. He had known it would not be easy. He must face it and, what's more, he must solve it as well as it could be solved. He had working for him the finest collection of specialized scientific talent in the world, the Weather Advisors. And if the politicians in the Weather Council and the scientists in the Weather Advisors could come up with something, the hardy bunch who lived on the sun, the Weather Bureau, would find a way to carry it out.

Wilburn felt better as he thought it through. The three arms of the Weather Congress had their worst problem looming in front of them, but they would bring it off. It was up to him to keep the vast organization from falling into the emotional doldrums that had almost touched him just now. He sat straighter. Yes, his main job would be to keep all the leaders inspired enough to instill confidence down to the last electrician who replaced the luminous panels in the halls. He would have to think of the best ways to go about this inspiring role, but first to the business at hand.

He touched the viewer on his desk to see what his waiting room looked like. Crowded, as usual. Why did these people wait so long to see him when they knew deci-

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sions were made only on the basis of their written requests. But he knew the answer. These men and women all represented large groups; they were all skilled and highly paid lobbyists. It was important to them to be able to tell their clients that they had actually talked to the president of the Weather Council—never mind whether or not it did any good. Yes, there sat Frank Chadworth, lobbyist for the Florida Citrus Growers Association, a persuasive man, one who knew how to present an argument that met head-on all the problems and who had the courage to leave out the emotional but irrelevant points. Chadworth had been waiting for several days on an open appointment.

Wilburn touched a button and spoke softly to his chief receptionist, "Sylvia, can we reasonably see Chadworth now?"

There was a pause, and Wilburn knew that Sylvia was quickly scanning the list in front of her and evaluating it. She said, "Better to see Gaudin of the Mining Association first, Chief."

Wilburn did not question her judgment. He said, "Send in Gaudin."

Gaudin was a stocky man with a great shock of white hair, and he also knew his business. As he came in the door he started talking. "Thank you, Mr. President. I have left with your Review Board data showing our latest processes for recovery of iron and copper from the very low-grade ores that are all we have left in the Rockies. The data show our present water consumption plus an extrapolation of our requirements for the next ten years. We have listed the source of all our information so your people can check. I think you will agree that these metals are the very lifeblood of our civilization, and that meeting our water requirements is in the best interests of the public."

It was a concise argument, but Wilburn decided to get in his own points, too. "Mr. Gaudin, important as these metals are to our economy, what would you decide to do if your water requirements conflicted with that of our important farm belts. You would then have a choice to make: metals or food. Which would you choose?"

"Both are vital; it would be a question of relative amounts." It was a quick and accurate answer.

Wilburn knew better than to discuss it further. He said, "Thank you. I assure you your points will be given the fullest consideration."

Gaudin turned to go, saying his thank you's. At the door he stopped and looked back and said without smiling, "With it all, I'm glad I'm on this side of that desk."

Wilburn nodded and said. "I understand. But I worked very hard to get here."

Gaudin nodded, said "Good luck," and went out.

Wilburn was startled. It was the

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first time in a long time that anyone had taken the trouble to wish him luck. There was a man who might fit on his staff. He jotted Gaudin's name on a sheet of paper, sighed and leaned forward to ask Sylvia to send in Chadworth. A soft chime rang in his office, and the voice of his First Secretary said, "Tongareva to see you, sir, and the session starts on the Floor in fifteen minutes."

"That's it," said Wilburn. He felt a moment's compassion for Chadworth who would now have to wait another day. He turned to greet Tongareva coming in through a side door to his office.

There was a concern in Tongareva's round face that Wilburn had never seen before; the gentle eyes were sadder, the normally smiling mouth drooped at the corners, and the smooth, lofty brow was wrinkled. Wilburn got up and stepped toward him and stretched out his hand and said, "Come now, my good friend. It is not as bad as all that."

Tongareva managed a slight smile and said, "Only to you would I show this sorrowful face, Jonathan. But have you considered the potential disaster that lies before us?" He sat down on the edge of a chair and looked at Wilburn.

Wilburn went back to his chair and said, "Yes, I have. I view it as our greatest problem, and I am ready to urge all our people to bring their greatest effort to bear to solve it. There *is* a way, somewhere. We have to find it."

"Yes, but in this instance, for the first time, I feel among our own members the beginnings of sectionalism. Already they are thinking about what they must do to get more than the proper share of rain for their section. The seeds of disunity are among us."

"Yes, I understand. We will have to try to hold them together."

They sat in quiet, thinking, two Councilmen deeply concerned with the affairs of the world. Gardner Tongareva, whose district measured fifteen degrees on a side the same as each of the two hundred Councilmen, yet whose land area included only Marcus Island in the Pacific for a total human population of four. Jonathan Wilburn, whose district included the populous northeastern United States of 100 million people, president of the Council, possibly the most influential man on Earth. Yet many times, when the votes of the Council were counted on important issues, it became clear that Tongareva the Polynesian had deeply influenced Councilmen from districts all over the world.

"Jonathan," said Tongareva, "I do not like to burden you with additional problems at a time of crisis like this, but I thought I ought to impart to you a feeling I have."

Wilburn swung to face him, and listened. It had been demonstrated

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more than once that a Tongareva "feeling" was often more significant than another man's analysis. Tongareva said, "Ordinarily, I do not place much importance on these cults and offshoot groups formed to give vent to unpopular ideas. But this group that calls itself the Brotherhood of the World, this self-styled BROW, gives me concern. It will probably stir up additional dissent regarding any decision we make on precipitation allocation. I have tried to organize my feelings to be able to describe them to you, and I have not been very successful. But"—he stopped and wrinkled his forehead with effort—"many of the people in it are highly respected scientists, and I can not understand why they will not try to understand some of the problems of government or why they would join such a group. It must have appeal for them, and I do not understand it."

Wilburn nodded. "I know of it, and I think I understand, at least partly. It shows the division of our civilization into two cultures, the political and the scientific. The two don't really understand one another, and BROW is one of the protest groups. It's a place to shout against authority they don't approve of."

Tongareva sighed. "I hope that's all there is to it, but I'm concerned." He looked at his watch. "I guess it's time to go in to the Floor. A session will be starting. Anything I can do?"

"I can't think of anything at this time, my friend. But please don't go far away. We are going to need everything we can muster to solve this allocation problem."

Tongareva left, and Wilburn lay back in his chair and stared at the ceiling. He wiped his mind of all thought and just sat, staring. For a full minute he sat that way, and when he straightened he felt refreshed and strengthened, ready to guide the Council through what might be its stormiest session.

He told his office staff he was leaving for the session. The warning lights along the corridors glowed slightly to inform the guards that the President was on his way. Wilburn always walked alone to the Floor, believing it made him seem to be more a part of the people. Visitors thronged the halls and the Councilmen customarily moved among them, relying on the strict rules forbidding any applause or demonstrations or speaking to a Councilman unless he spoke first. Wilburn had never believed in putting on a false front, so he seldom smiled at everyone or waved unless he really felt like doing it. He did not feel like it today, and he walked somberly down the halls hardly hearing the soft voices of the guides explaining to the public who he was and where he was going. He entered the great Council hall, went up to the rostrum, sat down, and activated his desk.

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When he was done flipping switches and pushing buttons on his desk, he checked the screen and saw that a quorum was not quite present. It did not concern him, for he knew that a session such as this would be fully attended, except by Councilman Georges DuBois of middle Europe who was in the hospital recovering from a massive heart attack. Wilburn asked for a line to the hospital, got DuBois and said, "How does it go with you, my friend?"

DuBois's face was wan in the screen, but he smiled and said, "Well enough, Jonathan, thank you. I worry about you, though. How are you going to handle this dilemma we are all in?"

"Now, George. This is not for you for a while. We will handle it, and when you are fully rested you will help us, but for now you are not to concern yourself with it at all. Will you do that for all of us?"

"Yes, thank you, but that Florida situation seems hopeless and . . ."

"George."

"All right. All right." DuBois waved a hand weakly. "I'll talk to you later, Jonathan. Go to work now. Thanks for looking in."

Wilburn smiled and turned to the board with the count. A quorum was now present, and still another two minutes to go before the scheduled start of the session. Good. His policy of always starting on time was having good results. The aisles between the great desks of the Councilmen were now crowded with Councilmen hurrying to reach their desks before the inevitable fall of his gavel calling the session to order on the exact second.

A light flashed on his desk for a priority call, and when he answered it, it was his wife. Harriet spoke quickly and quietly. "I've canceled our attendance at the Smithson dinner tonight. I think it would be nice to dine at home, just the two of us. Is that all right?"

"Yes, my dear. Thank you." And Harriet was off the line. He shook his head. How had that woman known that he had not wanted to go; the crisis was too much with him. A faint deep sense of annoyance, so deep that he himself had hardly been aware of it was now lifted from his mind, removed by a wife who was more understanding perhaps than she herself knew. He took a deep breath, and as the sweep second swung across the hour he brought down the gavel and called the session to order.

The weather requests came on, read by the Recorder and flashed simultaneously on the screen so the Councilmen could both see and listen. The very first request was that of the Rocky Mountain Mining Association asking for more water to improve the recovery of the metal values of the low-grade ores. Wilburn nodded. Gaudin had been busy indeed to get his request at the top of the list. That request would probably be granted before

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this was over, but somewhere in the world some region would have to suffer for it. Yes, Gaudin would make a valuable addition to his staff.

The Florida Citrus Growers needed another two inches in the height of the water table to improve production of the citrus groves, but immediately the Florida Resort Association went on record with a protest: any more night rainfall would leave the golf and tennis courts too soggy; their walks and gardens and sunning areas were too wet already; maintenance costs were going higher and these would have to be passed along to the people. Wilburn shook his head. Even in Camelot, where it rains only at night, it could be overdone.

His phone flashed and it was Maitland, and instantly Wilburn's guard went up. Maitland said, "I don't like this Florida situation, Wilburn. How do you think it should be resolved?"

"I don't know yet; the answer seems to depend on other needs. What do you think?"

"I favor the resort interests. They have a greater capital investment."

This was probably true, but Wilburn was careful not to say so. Maitland's district was 60-75 west longitude 30-45 north latitude, right next to Wilburn's, and it included New York City and Boston, prime customers of the Florida resort interests. But Maitland was no friend of Wilburn's; just the opposite. Maitland had been Wilburn's chief opponent in the run for the presidency of the Council, and Maitland still lost no chance to make Wilburn look foolish. In fact, Wilburn had just learned that Maitland had quietly gathered a dissident faction among the Councilmen whose goal was to place the blame for the rainfall allocation dilemma squarely on Wilburn. But among that faction was a Councilman who was a staunch Wilburn supporter, and he had quietly reported to Wilburn that the faction was afraid to openly and strongly oppose Wilburn on the matter for fear that Wilburn might find an answer to the dilemma and thus politically demolish all the members of the group. At one of the unannounced meetings of the faction a dissident Councilman had stated flatly and in all sincerity, "This Wilburn *might* accomplish *anything*." Wilburn had been stunned at the remark when it had been reported to him.

He said to Maitland, "Well, be sure to let us have the benefit of your recommendations when you are ready." Maitland grunted and rang off.

Wilburn saw the board flash the request of the American Association of Papermakers. They wanted to devote the entire output of the Hudson River to a long chain of papermaking mills extending from Bear Mountain to Albany. This would enable them to take over a large share of the world's paper

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market which would be highly desirable for the United States. Wilburn shook his head; that Association should know better than to try to appeal to sectionalism in this day and age. They needed a good lobbyist; they'd never get a request through with that approach.

The Southern Fur Bearer's Association had a request to change the quality of the snow in Tierra del Fuego during the spring and fall. No additional water needed, just a change in temperature. The count on the big board immediately showed that a majority of the Councilmen were in favor of a quick study of that one. Again, Wilburn shook his head. He was in favor of it, too, but the eagerness to get to a request that did not involve additional water was a little pathetic, beneath the dignity of the Council. However, this was not the time to buck the sense of the Council, and Wilburn rang the secretary and told him to put it high on the agenda. He sighed and turned to the treasurer's report. And then his emergency light flashed, that tiny but penetrating light mounted dead center on the great desk. He reached for the switch with a sinking heart and stopped just before pressing it. Intuitively he felt disaster. Things were so bad that it seemed inevitable that they should get worse. He drew a deep breath and pressed the switch.

"Mr. President, this is John Alpern, president of Associated Press. We have just verified a finding of the University of California at Berkeley. You have been aware I am sure of the increase in continental drift in the past six months." Wilburn was, but he said nothing. "Well, it has just been noted that the drift has accelerated to enormous proportions. In fact, it can be seen that at the present rate of drift, without any further acceleration, all the continents of the world will come together in one region to form a single giant continent within a period of fifty years. I ask your permission, sir, to place this news before the Council and the rest of the world at this time."

It was a mere formality, this request, for such news had to come out, and soon. Wilburn said, "Certainly, sir. Thank you for asking."

He sat back and watched the great board grow blank, heard the clanging bell, saw the Councilmen stiffen in their seats, felt the same stunned amazement, once the announcement was made, he himself had felt. When it was over the Council was totally quiet. Wilburn used his slight advantage to find his voice. He said to the Council, "In view of this development, this meeting is adjourned until tomorrow morning at ten o'clock, at which time we may have some further information. Adjourned." He slumped back, and rubbed his face. He pushed himself out of his chair with an effort and slowly walked to the

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corridor. His head was down and his mind was too numb to think. Wilburn did not look at the people in the corridor. The guides in the corridor looked at him with concern as he went past; his step was slow and his face was drawn, and he looked like an old man. He turned into his office and went through his reception room without a word to Sylvia. In his own private office he did not even cross to sit behind his desk; he dropped into one of the visitor's chairs and leaned back and closed his eyes. He tried to think of an answer to the disaster that confronted him: the Weather Council, the mighty arbiter of the world's decisions, was confronted with a problem with which it was powerless to cope. Yet the people of the world would look to the Council for an answer.

Tongareva came in and quietly took one of the other chairs and watched Wilburn. Mumrob, leader of the African group, entered and sat in another. Maitland came in, and pulled a chair away from the wall and said, "All politics are off, Jonathan, until we solve this. I'm here to help in any way I can." Wilburn opened his eyes and nodded without smiling. There were no chairs left when Charles Franklyn entered, so Wilburn waved for him to sit down in Wilburn's chair behind the desk. Franklyn was a big, bluff man who often cast a dissenting vote for no reason save the preventing of a unanimous decision. He made a fetish out of going in a direction opposite that of most of his peers. He often said, "I like to swim up stream," and only a clarity of view kept him from being one of the Councilmen who made little contribution to the work.

Tongareva said, "The climatic patterns over the entire Earth will be changed. The Congress will be unable to maintain existing weather patterns in such a new configuration. What was that ancient single continent called? Pangea?"

Maitland said, "Yes, Pangea, from the Greek *pan,* meaning all, and *ge* meaning Earth. But even worse than climate, what will it do to population stability? Think of the new boundaries. Morroco pushed up against New York. The point of Brazil against Nigeria. Greenland against Scandinavia." He shook his head.

"Perhaps even worse," said Mumrob, "would be the elimination of coastal regions that have been coastal regions since the memory of man runneth not to the contrary." Mumrob was a lawyer. "You can't change the heritage of entire regional populations."

"Right," said Maitland. "I don't see how this thing can lead to anything but chaos, total chaos."

There they sat, an unofficial group of men who might reasonably be said to be the heart of the world government organization. Wilburn, sitting in one of his own

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visitor's chairs, looked around at the others. From behind Wilburn's desk Franklyn said, "Does everybody feel as helpless as I do? I don't know where to turn."

Wilburn stared at him. There was something in those words, something that held the key, buried in those simple sentences. What was it? He sat up and leaned forward and his face contorted with the effort of thinking. It lay there, just beyond his power to see it. He clenched his teeth while the others sat straighter as they looked at him, aware that something was very much amiss. Wilburn raised a clenched fist and pressed it against his forehead. And then, in a blinding flash of insight he had it. It left him limp, and he fell back in his chair, a happy smile on his face. The others stood up, except Tongareva, who alone among them recognized the smile for what it was. Maitland said, "Are you all right?"

"Heart attack?" asked Franklyn, standing and leaning across the desk.

"No, gentlemen," said Wilburn. "I am fine. Thank you for your concern. I have just thought of what seems to me to be our course in this matter. I'm afraid the shock of what we are facing in this drifting continent situation drove all rational thoughts from my mind."

"Well, what is it, man?" It was Franklyn, still leaning with his hand on Wilburn's desk.

Wilburn leaned forward. "Yes. Well, I think all of us have been supposing that since we are the world government, we as Councilmen must do something about the drifting continents. We are the elected leaders, all things devolve on us. Right?" He did not wait for an answer. "The important thing for us to keep firmly in mind is that we are after all merely a government. The people we govern are just as important as we are; we are not alone. Well, it is apparent that we as politicians cannot at this time do anything about the drifting continents. So let us stop worrying about our inability to make an intelligent decision. Let us turn the problem over to those who might be able to give us the information we need. We are faced with a scientific problem. So, gentlemen, let us put the problem in the hands of those who are equipped to handle it. Let us turn it over to the scientists. As a starter, let's give it to the Advisors, our own scientific arm, to see if our control of the weather has somehow caused this drift. I don't think it has, so we will not stop there. We will bring into the solving of the problem the entire scientific community. It is in their hands that the solution of this problem lies. Once we know what is happening, we can then decide what to do about it. I can see the possibility of asking our scientists to reverse the drifting process, if such seems possible. But it all comes

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to this: this problem isn't ours, not yet, anyway. Let's put it where it belongs. That seem right to you gentlemen?"

They all sat down slowly. Franklyn said, "At first it seems as if we're ducking our responsibilities, but . . . I know, I know," this last to Wilburn who had started to speak, "it isn't really. We just have to have more information, and we can't move without it. So face it, and do what we have to do to get the information, and quit worrying until we get it." He slapped his hands together. "I'll buy it, Wilburn. I'm with you a thousand percent."

Wilburn looked at Tongareva, and Tongareva smiled, winked and looked pleased at Wilburn. Wilburn heaved a happy sigh and stood up. The decision had the right feel about it, and all of them knew it. Wilburn said, "I'll call Greenberg over at the Advisors right now and have him get started. Please listen while I make the call, gentlemen, and make any suggestions you care to."

He placed the call to Stockholm where the Advisors were located, and got Dr. Greenberg, head of the Weather Advisors, on the phone and explained their decision to him. It made sense to Greenberg who promised that his staff would start on the problem within the hour. Wilburn hung up and said, "Well, we'd better begin thinking about our other problems again. We have some nasty allocations on our hands. Now that Greenberg has the drift problem, let's forget it for a while, if we can."

Greenberg hung up the phone and said to Upton, "Must be nice to be a politician. Anytime you get in trouble, you dump your problems on someone else."

"What's the matter?"

"Not much. Wilburn over at the Council wants us to solve the continental drift problem, that's all."

"Why not? We're the ones to do it. He can't."

Greenberg chuckled softly. "That's what he said. I suppose he's right. It's nice to feel wanted. Well, I guess we better call a meeting. I don't know of any better way to get things all hashed up around here than calling a meeting. How I dread them." Greenberg was a rare man. He was a resourceful mathematician, and at the same time he could give orders to his large staff of highly trained, highly sensitive, and highly independent scientists and have them accept and carry them out—most of the time. But it was never easy, and the meetings at which the approach to a new problem was worked out were often noisy and difficult. "Look," said Greenberg. "It is now one thirty. We'll call the meeting for two o'clock. I'm going to rely on you to throw me out of the meeting at four o'clock on the button. I have a squash date at four thirty that I'm going to keep; after that meeting

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I'll need it. Will you do that? No matter what's happening or who's telling me how wrong I am, you get me out of there on some pretext."

Upton laughed. "Gotcha. And good luck in squash."

When Greenberg entered the Conference Room for the two o'clock meeting, all the others were already there. He looked around in astonishment. There was Anna Brackney and Kropa and Pechio and Hiromaka. Usually they dragged in two to twenty minutes late, Anna Brackney in particular. He sat down and said, "We've got a problem. We . . ."

"Yes," said Kropa, "we were discussing it while we were waiting for you. We've divided up the last two years into six equal periods of time, and we've picked teams to study each period. We've chosen several geologists to consult as we need them, and we know where to get any other specialties we might have to draw on as we analyze this drifting continent problem. I'm afraid we all pretty much think the continental motion is unrelated to the weather, but we're going to try to demonstrate it mathematically. So if you can turn over to us the entire facilities of the Advisors, and give us carte blanche to pull in additional help, we think we can give you the answer in four hours. Right?" This last he addressed to his colleagues. They all nodded.

Greenberg looked from one to the other, wide-eyed, and said, "You've got everything you want, then. If anything gets in your way, see me to clear it. I'll stay here until the problem's resolved. Anything else?"

They didn't even answer; they simply got up and trotted out of the room. Upton, one minute late for the meeting, was trying to get in as they rushed out, and he had to wait until they left. He finally stepped in the door and said, "What happened? You cancel the meeting?"

"Nope. The problem is all set up. We'll have the answer in four hours."

"Well, how in the world did you do that; the meeting hadn't started, had it?"

Greenberg tapped his right temple with his right forefinger. "Good management."

Upton said, "At least you won't have any trouble keeping your squash date."

"Oh, that. Well, I'll have to cancel it now. They may need me to throw some weight around. So let's stand by."

Exactly four hours and five minutes later Kropa came in with a sheaf of papers, the others trailing behind, and said, "Here you are: an analysis of the weather effects on the Earth's crust and mantle. Negative. We all agree that the demonstration we have here would be persuasive even to someone hostile to it; it's pretty clear. Anything else? We're hungry."

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Greenberg took the papers and rubbed his chin. He said, "Wait a minute before you go. Let me pass this on to Wilburn."

He called Wilburn on the special line. Wilburn was still in his office, so Greenberg was able to explain very quickly just what the conclusions were. They made arrangements to publish the analysis. Then Wilburn said, "That's the completion of the first step; we've now got weather control off the hook as far as responsibility is concerned. The next step is the big one. What is causing the drift? We have to find out, and only the scientific approach can lead to an explanation. So will you have your people set up some sort of guide that will lead to an explanation? You can have full authority to pull together any groups you think you need, to get any equipment your teams may want, and to back any programs or research that will help. I hate to say this, but money is not to be considered in this, so don't worry about waste, or efficiency, or duplication of effort. If you have to muster half the scientific community, do it. Do anything that might hasten finding the answer. Do you see it?"

Greenberg had turned up the power on the phone, and all his group leaders had crowded around; they were not so blasé that they were not interested in listening to what the President of the Congress had to say. Greenberg looked around at them, and they were all looking thoughtful. That was a good sign. When that group looked thoughtful, things happened. Greenberg said, "All right. We'll try to set something up. This may get big, and we may need a lot of authority, so I suggest that I keep you completely informed as we go along so you can stand behind us as we go."

"I was about to suggest that myself. The Council meets at ten hundred hours in the morning. Do you think you can give me something to present to it at that time?"

Greenberg looked around at his people, but they were lost in thought and were no longer listening. He said over the phone, "We'll try, Mr. President."

Wilburn merely grunted "Yes," but Greenberg got the message. They rang off.

Anna Brackney had her finger in her mouth, her most productive thinking posture. She said, "We need geologists and physical chemists, mainly."

Kropa said, "Geochemists, too. Physicists, specialists in thermodynamics."

"And others, I'm sure," said Greenberg. "But how can we get groups working on projects that will lead to digging out the reasons for the drift?"

There was silence for a moment, then Hiromaka said, "That's a question the geologists may be able to answer better than we." They all nodded. They found themselves seated in various parts of Green-

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berg's office, using up the two chairs and perching on the corner of his desk. Anna Brackney sat cross-legged on the carpet on the floor. Greenberg turned on a recorder, and made notes on a pad. Two hours went by. They forgot about supper. The details of collecting the information began to form a pattern.

Greenberg said, "I guess the time has come to start getting in touch with some of these people." He looked at his watch. "We have some calls to make, and we'll disturb some of them."

Pechio said, "We'll drag them out of bed, we'll drag them away from their meals, we'll get them out of their classrooms." He chuckled and rubbed his hands together.

Anna Brackney got into the spirit of things. "I happen to know that Cartwright is cruising in his boat around Martha's Vineyard. I'll get the Coast Guard to haul him in so we can put him to work." She jumped to her feet.

Greenberg did not wholly share their obvious glee, but he assigned names for each of them to call. They spread out, seeking telephones. And in five minutes the first tenuous plans for a major crash program were under discussion on a worldwide basis. In two hours they met again in Greenberg's office to compare notes. Some of their contacts had had ideas, others wanted to think about it for a few hours. But one fact kept coming up, one name kept confronting them. Greenberg said it. "There's no doubt. The man to head the whole program must be Dr. Jefferson Potter; all the geologists want him. And right now he's up on the sun on a project and we'll have to get him down." He turned to Upton and said earnestly, "Why is it that everytime we need somebody immediately, he's always up on the sun?"

Upton shrugged his shoulders.

Dr. Jefferson Potter sat in a jury-rigged seat next to the pilot's seat in a sessile boat. He could see all the instruments from that position, and he continuously glanced at them and filled in the columns on the sheet on the clipboard he held on his lap. "It's not coming out right, Jim," he said.

James Eden, boatmaster, shook his head and said, "I don't understand it. We're missing something here. Let me run a check." Without waiting for confirmation he said into his throat mike, "What color have you?"

Back came the answer from all four points aboard, "Green, Master."

Boat formality demanded that the exchange end there, but Eden never allowed formality to get in the way of accomplishment when he was out on a mission. He said, "Doc and I are getting nowhere up here. Anybody got any ideas?"

"Nothing, here, Jim."

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"Inject at a higher speed, is all I can think of."

"Nah. Maybe the theory's no good."

None of the suggestions was helpful.

Eden said to Potter, "I don't know, Doc. You got any thoughts?" It was a pretty casual way to talk to the Earth's outstanding geologist with a hot-shot theory undergoing test on a major priority.

Potter said, "Nothing, my mind's a blank, and no cracks." The young boatmaster and the venerable geologist had behaved like father and son within five minutes after they had met; an instant warmth and understanding had sprung up between them. The young one had recognized the fresh, vigorous and sparkling mentality of the older man, while the older had seen the same things in the younger. It was as if the fifty years between them was nothing. "That's not really true," continued Potter. "There are half a dozen things that are possible, but I have to consider them at length. Let's finish this run, take the data, and then head back to Base. If you can find it, that is."

Eden chuckled. "We'll try." He spoke into the intercom. "Stand by for another run. Report." He got back the expected call of "green" from all stations, and they set a course. Potter settled back in his chair and watched Eden's hands as they fluttered over the controls and then settled on the servo handles to guide the boat. The boat bucked and kicked as she skirted the edge of the churning sunspot, three miles beneath the photosphere. It had been Eden's own modification of the boats system for discharging the carbon vapor that allowed them to penetrate to such depths. The sessile boats normally scooted on the sun's surface like a drop of water on a hot griddle. With Eden's modification, they could travel totally immersed. From a position beneath the surface they could modify the fusion reactions at depth with greater facility.

The boat bucked in the grip of the sunspot, and Potter felt the responsive touch of Eden's hands at the helm. He shook his head in awe at the skill of these men. Engineer, daredevil, theortician, all of these it took to run a sessile boat, all wrapped up in one man. Potter looked down at his own slight paunch and ruefully compared it with the lean man in the pilot's seat, then he turned to read the data and transcribe them on the sheet on the clipboard. In five minutes the run was done, and they headed for the surface.

The boat bucked wildly as they passed through the subsurface turbulence, and only the seat harness kept them all from being tossed around. They broke out on the surface and the boat skidded out of control for a few moments while Eden fought to regain control. He soon had the boat in normal pos-

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ture and called for a check from his crew. The men replied in a tone of voice different from that they had used before, and even Potter noticed it. The tenseness was gone. He looked questioningly at Eden, but Eden was busy finding their course back to Base. Then one of the crew reported, "Board's all green, Master. We did it again." And Potter thought he understood. He waited for Eden to settle back from his navigational duties and then Potter said, "You dive these boats often?"

"Not often yet, but we're working up to it. It's getting safer all the time."

Potter nodded. He had not paid much attention when they had explained that diving a sessile boat was dangerous and not yet a standard practice. But now that he felt the relief of the crew he appreciated that the danger had been real. He shrugged his shoulders and turned back to his data.

They swung around and headed for the Base, fifty miles away. The sessile boat tipped forward and, in effect, slid downhill on its film of carbon vapor. The magnetic fields in the toruses guided the boat, and it surged up and down as it traversed the roiling surface. Potter sat and made certain his data were presentable, listening in a detached way to the chatter over the boat's intercom.

In an hour's time they jockeyed the boat into its slip in the Base and stepped out on the walkway. The five men stood behind the heat shield that protected them from the radiation from the boat and chatted before they went to the debriefing room. It was Weather Bureau policy to allow a returning boat crew a few moments alone together. They were then better able to shift their viewpoints back to normal after time spent in the heart of a raging cauldron beyond men's comprehension. Potter shared the warm and deep understanding that flowed from man to man as they stood there. Then they joined the others.

The debriefing was normal, and at the end of it a laser operator came in with a message from Earthside for Potter. It was signed by Greenberg, and it explained the entire problem of the drifting continents to Potter. The message ended by asking in Wilburn's name that Potter return to Earth immediately to head up the crash investigation to find out the cause.

Potter sighed as he read it, and he shook his head. "I never saw it fail. Just when I get toward the end of a problem and the goal is in sight, they want to yank me off. Why do these politicians have to act like that? They're supposed to know what they're doing."

Eden took the message and read it and said slowly, "You know, though. That problem of drifting continents strikes me as an interesting one. I don't know anything

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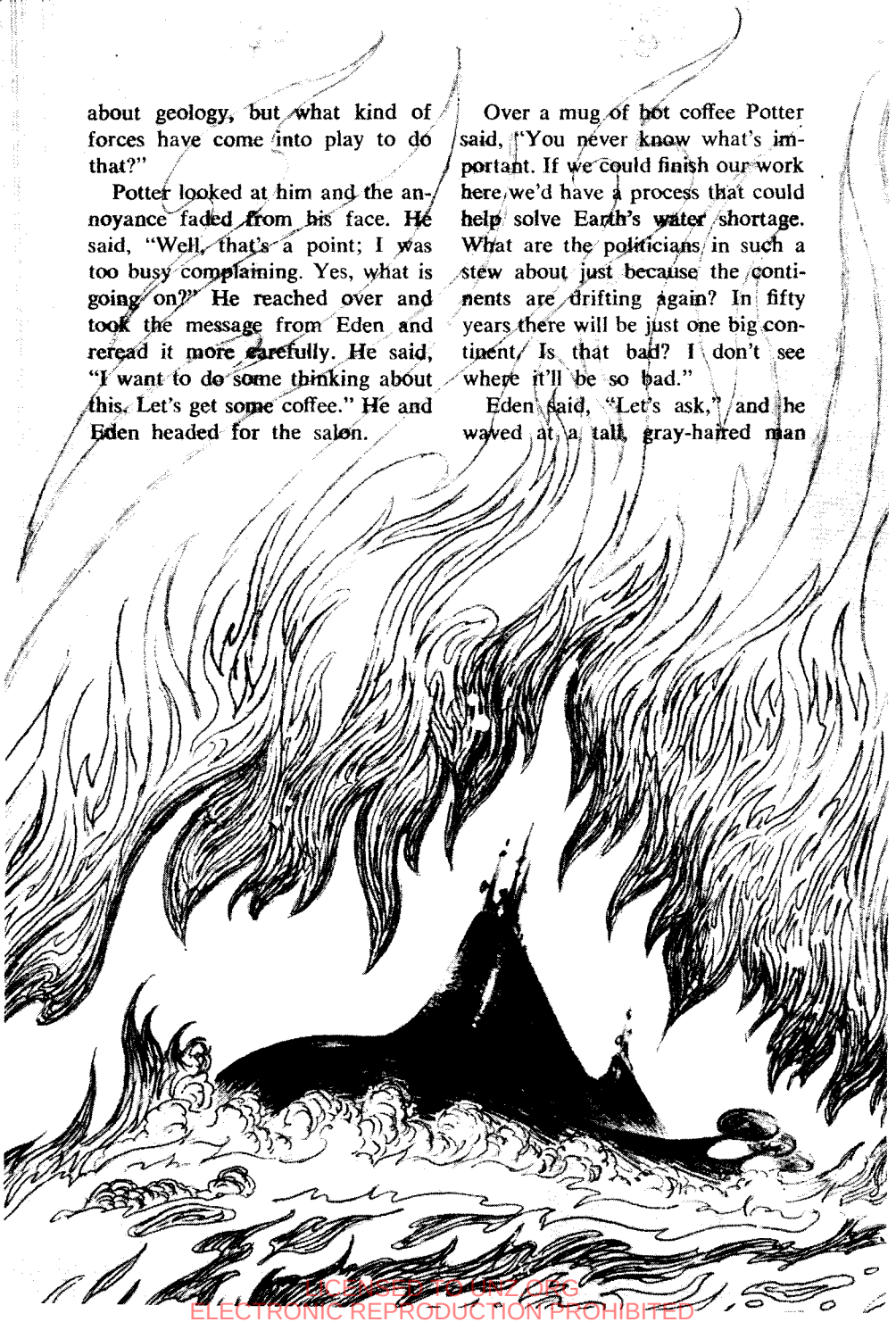
about geology, but what kind of forces have come into play to do that?"

Potter looked at him and the annoyance faded from his face. He said, "Well, that's a point; I was too busy complaining. Yes, what is going on?" He reached over and took the message from Eden and reread it more carefully. He said, "I want to do some thinking about this. Let's get some coffee." He and Eden headed for the salon.

Over a mug of hot coffee Potter said, "You never know what's important. If we could finish our work here we'd have a process that could help solve Earth's water shortage. What are the politicians in such a stew about just because the continents are drifting again? In fifty years there will be just one big continent. Is that bad? I don't see where it'll be so bad."

Eden said, "Let's ask," and he waved at a tall, gray-haired man



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who had just entered the salon. It was Commander Hechmer, and Eden respectfully stood up as he sat down at their table. Hechmer listened as Eden repeated Potter's question.

Hechmer nodded. "Purely a political question, I think. The old borders between nations will be changed, new tensions will arise. It would take hundreds of years for people to get used to their new neighbors. I think that's what's worrying the Council.

Potter shook his head and said, "You may be right, Commander, but I don't understand it. Don't people have anything better to do than worry about what their neighbors are like? If all of them work hard, what difference does it make?"

Potter was not really asking a question, and Hechmer recognized it. He did not argue, and Eden saw again the sure touch Hechmer had with people when Hechmer said simply, "I don't know. Strange, isn't it?"

Eden, hard headed realist that he was, could see the blind spot in Potter. Potter was a man who threw himself deeply into his work, so deeply that he was never in touch with people who were not in deep with him. Eden raised his coffee mug and drank a silent toast to the scientific mind, brilliant, flexible, but not able to scoop up and assimilate the vagaries of multitudes of people. As he put his mug down, Eden was startled to see that Hechmer had seen what he had done, had somehow been able to see what was in his mind. But before Eden had time to feel embarrassed, Hechmer had raised his own mug and taken a sip, and all was well.

Hechmer said, "You know, Jim. If Dr. Potter goes to Earth to look into this, maybe you ought to go with him. It'll do you good to work with a pure scientist for a change instead of spending all your time with boat jockeys." Before anyone could answer him, he put down his coffee and said, "Well, see you later," and he got up and left the table.

"Say, that's an idea," said Potter. "How about it, Jim? I'm going to need a jack-of-all-trades assistant. I can't think of a better one than you."

Eden knew when he had been outmaneuvered. Eden had managed to stay beyond his normal tour of duty, and Hechmer had never quite approved. Hechmer had an idea that his men should be many things in addition to a boatmaster, and that they had to acquire some of their skills back on Earth to keep from growing stale. Hechmer was using Potter to entice Eden back to Earth.

Eden nodded ruefully, and said, "Fine. I'd like that. But I'm going to be sorry not to finish your work here. I hate to see it dropped."

"I agree with you. We are just on the verge of uncovering a fantastic

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technic of controlling the sun's power." Potter shook his head.

"Too bad. If we had it, we could move continents. We could . . ." Eden stopped, and the gooseflesh appeared on his arms. He stared at the tabletop as the insight burst upon him. Eyes wide, he looked up at Potter, and Potter was staring at him. The two men looked at each other, knowing what the other was thinking. It was Eden who spoke first. "Do you think it is possible?"

Potter nodded slowly. He said, "Perhaps. The question is, which is more reasonable to believe: that Nature has gone out of its course, or that man has found a source of power to move continents, and is using it?"

Now Eden nodded slowly. "Put that way, it makes even more sense. Why, we ourselves are on the verge of such a discovery. Somebody has beaten us to it, that's all, and they're using the system to push the continents around." The concept was so overpowering he had to stand up and pace back and forth near the table. "You know, this changes the whole approach to solving the problem. Instead of looking for a cause, we now look for a person or group. Probably a group."

It was Potter's turn to become agitated. He, too, got up and began walking. "We can do both—look for a group and look for a cause. That way we can use our best scientists along with an investigation by the Congress to find the group. Why, this telegram," he waved the message, "says that money is no object. We have two powerful and sharp edges to our sword."

Commander Hechmer came back to the salon to tell Eden of the ship schedule to Earth. He stopped just inside the door, looking at the two of them furiously pacing up and down alongside their table. He looked at them for a moment, and then turned and quietly went out.

Eden stopped pacing and stepped up to Potter and said, "One thing. I think we should not let word leak out that we know what is happening." He was already speaking as if it were a certainty that someone was causing the drift. Potter fell into the same mood. He stepped closer to Eden and said, "Yes. No one but you and I should know it until we tell the authorities. And that will be the next step. You and I will see Wilburn and explain this to him. Then we can work out what to do next."

"Wilburn? The President of the Congress?"

"Certainly. He's the one who wants me to head up this investigation. He'll be the first one we'll tell, and then we'll plan it from there."

Wilburn wouldn't believe it. "Do you mean to tell me, Dr. Potter, that you seriously assert that some human agency is behind this continental drift, guiding it, forcing it to happen, deliberately?"

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Potter nodded quietly. "That is our best guess."

"I can't believe it. Where are the scientific staffs of our government laboratories, or our universities, or our industries? How could it happen without somebody knowing about it and telling us?"

Potter said, "You lump all scientists together as if they were a homogeneous body of people, and they are not. There are hundreds of specialties, many of them doing work that the others know nothing about. At the same time, they may well not be concerned with our political system at all; they don't think the way you do. They don't have the same responsibilities you do. In short, there are really no reasons at all why some group of scientists somewhere should behave in the way you, as President of the Congress, would expect."

Wilburn sobered at that comment, and Eden said, "Sir, Dr. Potter has a reason for believing this human agency theory. It's simply this: it is easier for him to believe that men have found a way to move the continents than to believe that the Earth should behave so unexpectedly."

Wilburn said slowly, "Yes, I see the force of that reasoning. Wait a moment. Let me get Tongareva in here." He got a line to Tongareva and asked him to come right in. He drummed on his desk top while they waited the ninety seconds it took Tongareva to arrive.

Wilburn succinctly stated the theory to Tongareva. As soon as he heard it, Tongareva slapped his hands together and said, "Of course."

Wilburn said, "You think there is some merit to this idea?"

"Very definitely. The thing that I find believable about it is that I believe that men can find a way to do things like this. I do not find it so easy to believe that our scientists are not able to explain to us why the continents are drifting the way they are."

Wilburn shook his head in wonderment. "That's the same reason, put slightly differently, that Dr. Potter here gave for believing it."

Potter said, "Why do you find it so strange, Mr. President? The reasoning of scientists is often nothing more than considered common sense. Mr. Tongareva has a large share of it."

Wilburn sat quietly, thinking out the ramifications. He said, "The only thing I am afraid of here is of being too charmed by your theory." Eden noticed he had stopped using the word idea. "It gives us a definable goal and makes our job look easy—all we have to do is find the ones who are doing it, and I think we can." Potter started to speak, and Eden saw it and knew what he was going to suggest. Eden shook his head at Potter, so Potter sat back and waited. Wilburn continued. "I don't think we should totally rely on your theory, although

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the more I think of it the more I think you're right. I think we had better pursue both possibilities. Let's put our main effort at finding who is doing it, but let's also put a competent team to work to study any possible natural causes."

Eden cut in before anyone else could speak. "Great. That's a fine idea, sir. In that way we will make sure to solve this thing." He looked expectantly at Potter.

Potter took the hint and said, "Yes, fine. Let's do it that way." He now saw the advantage of having the idea come from Wilburn, and he winked at Eden.

Wilburn said, "As to the mechanics of it, I think Dr. Potter should work with the Advisors on this, and use them to help build any organization he wants for the study. Perhaps your organization, Dr. Potter, will be able to help the other investigatory organization we will have to set up. We don't have large staffs in the line of law enforcement agencies, so we'll have to build one to find the people responsible for this."

Potter said, "A moment, sir. Whoever is doing this is undoubtedly a scientist, or group of scientists. Nobody else would have the ability. Since we are looking for one or more highly skilled and knowledgeable scientific people, I think our group ought to play a large role in the investigation, not merely be on the sidelines. I'm sure you know that appreciable segments of the scientific community do not understand or do not agree with what the Congress does. Some very clever group somewhere is taking advantage of a discovery it has made to do something about the government. I think that's all there is to it."

The silence from the others indicated general agreement. Wilburn nodded slowly, "Yes. There is the question of the Two Cultures again. All right, we will let the scientific arm dominate the entire investigation. I will ask the Chief Counsel of the Weather Congress to give us an opinion as to whether the deliberate moving of continents constitutes a crime. These people might be committing a crime." The others nodded slowly; no one had thought of it. "You fellows go on over to Sweden and explain what you need to Greenberg there. I'll call and clear the way for you. We'll be in close touch all the time. All set?"

The others nodded, shook hands all around, and left.

When they had gone Wilburn said to Tongareva, "That's quite a pair. Did you notice how they guided me into coming up with some ideas they had already decided on? Particularly Eden. He should go far that young man. You don't often see that kind of understanding in one so young."

"I agree with you, Jonathan. These two people make an impressive team. It was easy to see the rapport between them."

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"Glad you feel that way. Let's get back to the first problem we had. Let us try to find a solution to water allocation on this overcrowded planet of ours. How do you . . . what's the matter?" Tongareva was staring at the door and rubbing his chin in a reflective manner, obviously not listening to anything Wilburn was saying.

Then Tongareva said, "After those two get through over at the Advisors, why don't we try to get them back here? I think they'd be a big help."

Wilburn chuckled. "I'm not so sure. With them around I have the impression that none of the rest of us would be needed."

Greenberg would not accept it. "I don't care what your reasons are. I just can't believe that somebody is pushing the continents around. Do you realize the energy requirements for such an operation? Oh, yes, of course you do." In the excitement of the moment Greenberg had forgotten that he was talking to one of the world's foremost geologists. "Well, I can't believe it. Makes it too easy."

Potter's right eyebrow arched a trifle, and Eden recognized the sign. He hurriedly cut in to say, "Well, Dr. Greenberg, you may be right and we all know it. For that reason President Wilburn has directed us to set up a research team to explore the scientific causes of the drift as well as direct an investigation into the possibility of human agencies' action in this. We don't want to miss anything here."

Greenberg nodded. "Yes, we certainly don't want to overlook anything." Potter's right eyebrow lost its arch and straightened out, and Eden settled back in his chair.

"In fact," Greenberg continued, "it will be interesting to see how the Investigation Bureau takes our supervision; they've never had scientists telling them what to do before. Yes," he grinned broadly, "the master sleuths may learn something from us."

They talked then about the types of organizations they wanted to set up, and Greenberg called in all his section heads to help. Hours later they had a fair idea of the structure they wanted. The Council's geologists were to be the nominal heads of five geological research groups centering in Calcutta Technology Center, University of California at Berkeley, Peking Science Institute, University of Colorado, and the Bolivar Institute. Each of the five principal groups had unlimited funds to solve in its own way the problem presented by the drift. Each was to issue a weekly report that was circulated to all groups, and each had wide powers to call for assistance from any organization. The vast computer complex of the Advisors was available for use by all. "Good way to keep control in our hands," said Greenberg, and Potter agreed.

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It was not so easy to devise control of the Investigation Bureau. The director did not like outsiders, and it took a call from Wilburn himself to convince the director that if he did not care to report in to the Advisors on this matter then they would find a new director who would. The matter was settled, but Eden pointed out that it would be relatively easy for the director to merely pretend he was doing what he was supposed to; they would have to keep a careful check on him. Greenberg and Potter agreed.

"You know," Eden said, "I'd like to work on the investigation end of this. Why don't I go out in the field. I don't know anything about geology, but I might be able to check up on what the Bureau is doing, anyway. And I'd like to run over to Berkeley and look around there. I have a feeling that I might run into something at that school. They've got hotshot geologists and some real screwballs there, and that's the combination I think we're looking for."

"I think you're wasting your time," said Greenberg, "but go ahead. Berkeley? I think that's Anna Brackney's alma mater. I'll ask her."

"Oh, yes," said Anna, later. "And if Boatmaster Eden is going there to do some investigating, why don't I go with him? I know my way around that campus, and it is a big one."

Eden didn't think much of the idea, but when Anna pointed out that she was a trained mathemeteorologist and was familiar with a broad range of computer technology, Potter said to Eden, "I think it might be a good idea, Jim. A team made up of a trained engineer and a trained scientist might be unbeatable in this kind of investigation."

Eden sighed and said, "All right. We'll do it that way. Now let's figure out the best way to appear on the campus without arousing any suspicions."

Anna said, "I think we should appear as a man and wife team doing some preliminary library research on, oh, say, clastic crystallization."

Eden looked at her, and for the first time he saw the way the wind was blowing. Anna's black hair was done up in a sloppy bun, and she wore a shapeless smock that made her look like a filing cabinet. Her leather sandals were stretched out of shape, and her toes were dirty. She had a small chiseled nose and a fine forehead, but these two good features were smothered by her general messy appearance. Eden mentally compared her with the beautiful Rebecca he had almost married, and Anna did not come out so well. "Well," he said, "we'd do better if we stayed independent of one another—cover more ground that way, get into more places. No, I'll be a mining engineer studying to find ways to penetrate to the

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Earth's core. You can take on that project you just mentioned. That way we can be in touch without getting in each other's way." It was an inspired plan, and it was adopted. It took a week to make the necessary arrangements to establish them as members of the student body.

Eden was bored to death. The course was Solifluction, and it was the deadliest course he had ever taken. He looked around the classroom. It had a far different feel from his classrooms back at MIT. Here the paint was new and the room had a sparkling appearance, but all the students looked old and tired and bored. At MIT the paint was old, and pipes ran across the ceilings of the classrooms, but the students looked young and fresh. Most of the students in this class had shaved their heads bald, according to the current fashion, and this made them look old. But it was more than that; their eyes were old and their manner was tired, and there was no snap in their speech. The instructor droned on and on about the effect of gravity on soupy soil, and it was an uninspired presentation. Eden did not like it there.

A musical chime finally tolled the end of the classroom period, and Eden gratefully leaped out the door. After three days he was still not certain of what he was looking for. He had been to several meetings of the fringe groups and he had opened discussions with half a dozen professors about continental drift, but he had not found anything worth while. He wandered now into the library. Anna Brackney was sitting at a small table between the stacks devoted to Sedimentation. She said, "Hello, James. Sit down." Then more softly, "Did you find out anything?"

He shook his head and said, "No, damn it. Nothing seems to be going on around here that makes sense. The classes are dull, the people are dull, the buildings are dull. I don't think there's anything here to find."

"Now, now." She bent closer in a conspiratorial manner. "I may have something. There's a group holding a meeting tonight, and I understand they say they are responsible for the drift. I think we ought to go and listen very carefully. Why don't I meet you in the dining hall for dinner and then we can go right on over to the meeting?

Eden looked at her suspiciously. Her hair was no longer in a bun. She wore it down her back gathered in what was called a foxtail; the end was dyed bright red. She wore tight slacks and a loose sweater, and it was now possible to see that there was a curve or two there. He sighed and said, "All right. I'll see you at about seven in the dining hall. Bye." He got up and walked out of the library to sit on the front steps in the warm sun.

He had been there for five min-

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utes when a bald student with bushy eyebrows dropped down alongside him and said, "Long walk. Think I'll blow a minute before I go into the library. They don't like any loud breathing in there."

Eden smiled at him, nodded at a huge notebook he was carrying and said, "Looks like you're going to copy down a book or two in that."

"Yeah. Might turn out that way. I'm starting my bachelor's thesis, so I've got to make the literature survey to start off. It'll be just my luck that the work I want to do has already been done."

They chatted about the miserable food at the dining hall, and then the student, his heavy breathing brought under control, went into the library.

Eden strolled around the campus, went to his room, took a nap, and showered. It was in the shower that something began to gnaw at him, but he couldn't define it. He went to meet Anna at the dining hall. The food was not very good, and he was glad to leave and head for the recreation hall where the meeting was to be held.

As they entered the hall Anna said, "Boy, this is a real odd-ball bunch. Just look at them."

Eden glanced at the students and hangers-on that were gathering in the hall. Most of the young men wore sleeveless undershirts and skin-tight stretch peek-a-boo trousers. The young women wore their hair long, wrapped around their necks and clipped to the top of open lace blouses through which could be seen the mechanics of their diaphanous undergarments. Their slacks were made of ribbons fastened side-by-side with elastic bands, and the colors were blinding. But it wasn't the clothes that made them look strange and out of place. It was their manner. They talked and moved vaguely, as if they had nothing to say and didn't mean to move at all. Eden shook his head. This was a different breed of cat from the boisterous bunch he had known ten years ago when he was in college. Anna was dressed exactly as many another girl there, but her eyes snapped and she moved crisply and she seemed glad to be alive.

Eden said to Anna, "This is a waste of time. This group hasn't got the gumption to move the chairs around in here, much less move entire continents. Let's go."

"Wait a while. You're right about them, but maybe they know something. Hang around till we see what develops." Eden didn't like it, but he sat down with Anna in chairs in the back of the hall.

After a fifteen-minute wait, a languid youth got up and spoke for ten minutes of the great times they were living in, since all was confusion and since none of those in authority understood what was happening or knew what to do about it.

Then a short, fat girl in round, fat glasses spoke for ten minutes on

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the right of the individual to choose his own morals and his own pattern of conduct to match his own intellectual scope. She worked into her talk the fact that she was on the Dean's List, and then she sat down.

The featured speaker was a little different since he spoke loudly and a bit forcibly. He opened by flatly stating that his group was behind the drifting continents, and his group intended to keep them drifting until the Congress listened to their solutions for the water problems that were facing the world. Eden had begun to pay attention at the opening of the talk, but he was puzzled as the man continued. It seemed obvious that nobody in the room believed the speaker, and what's more, the speaker did not seem disturbed at their lack of belief. But as the talk progressed it came out that the mechanism used by the speaker and his group to cause the drift involved a very secret ceremony calling for three girls and a man, and large quantities of a water-based adhesive.

Eden looked at Anna, and she looked at him and shrugged her shoulders, and touched her temple with her forefinger. Eden felt better about Anna; he had been afraid she might be swept up by all the mysticism around them.

Eden paid less attention to the speaker, and as soon as he let his mind wander the nagging sensation he had felt earlier began to bother him again. He shook his head, annoyed at himself for not being able to define it.

An undershirted youth on his left saw the angry head shake and leaned over and said to him, "You don't like it, Charlie, why don't you get up and say something better?"

Eden looked at him in disgust, and then looked back at the floor to try to resolve the gnawing feeling. The look must have hurt, for the young man got up and put a hand on Eden's shoulder and said, "I talked to you, Charlie, and when I talk, you listen. I don't like . . ."

Eden pushed the hand off his shoulder and said quietly, "Go away." He said it as if he were shooing a fly.

The young man seized Eden's shoulder and started to drag him to his feet. Eden came to his feet and grabbed the man by the throat and the crotch and lifted him and threw him twenty feet across the room. The people in the back of the hall jumped up and began to close in on Eden. His clothes marked him as the stranger in the group. The two nearest students reached out for him, and Eden stepped in quickly and crossed a left and a right and then stepped back and waited, balancing on the balls of his feet, hands hanging at his sides, his face blank. Mouths open, the rest of the group looked at the two lying on the floor with their faces smashed in; they shuffled their feet and didn't know what to do next. Eden took Anna

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by the arm and led her out. As they went down the outer stairs Eden rubbed his chin and said, "I almost had it. I've missed something here somewhere. Now what was it?" He stopped on the last step and rubbed his chin again and frowned in concentration. Then it hit him. "Why, of course. I should have thought of that." He turned and started to walk quickly down the road.

Anna shouted, "Hey, where're you going?" She trotted to catch up with him.

"I should have done it before," he said. "I should have started out with a literature study of drifting continents. That's the proper way for any program to start." He stopped and turned to her and said, "You're supposed to be a scientist. Why didn't you suggest making a literature survey before we started?"

Anna was startled. "Why, I didn't think of it as a scientific project. I just didn't think of it that way."

He headed down the road again, toward the library, shaking his head. "That's the trouble. We didn't think. I hope the rest of them on this search are thinking more than we are. What the devil have you been doing in the library all this time?"

"I was reading up on clastic crystallization, like I was supposed to."

He didn't answer. He swung up the library steps and went to the card catalog and began making notes of the references under "drift" and "continental drift." He went to the old issues of the periodicals and pulled a stack of them and sat down to read. Anna did not have anything to say, so she helped him carry the journals and waited for him to scan them before she picked one up to scan it, too.

In an hour he had been through ten of them. In the middle of the eleventh he stopped and leaned back and stared at the ceiling, eyes wide. Anna leaned over toward him to see what he had been reading.

Eden said, "Isn't there a geologist, at Harvard I think, by the name of Gilliant?"

Anna thought, and said, "Yes, I think that name was among the list we looked at before we came out here. Why?"

"Here's an article," he pointed at the one in front of him, "written by an E. Gilliant. Look at the title: 'Continental Drift and the Origin of Mountains.' He was the first to propose that the heat flow in the mantle and crust causes a non-Newtonian viscous flow. Continental drift is the hot creep that occurs as a result of that viscous flow plus a sheer plane on one side of a continent."

She looked at the article. "That article is over a hundred years old, in fact older. What about it?"

"He was the first to come up with the right idea. I'll bet he's an ancestor of our Gilliant. See how it rounds out the work of the family?"

"No."

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He paid no attention. "It has the right feel about it: the descendant finally exonerating the work of the ancestor, using the old theory, all of the scientists, a scientific dynasty, wrapped up in their own work for eight generations, the self-sufficient Establishment, almost a separate culture of their own. It might be natural for him to think of reshaping the world in his own family's tradition. It has the right feel about it." He stood up and looked around for a phone and went to the booth and placed a call to the Bureau and asked for background on the geologist Gilliant. There was some reluctance to cooperate, but Eden soon had the information he wanted.

Yes, Edgar Gilliant was working at Harvard, no political activities, brilliant, an expert in tectonophysics. When he heard that, Eden felt certain he had his man. The report went on: Gilliant was a recluse, introverted, although a pleasant enough man of about fifty. He was married to a proper wife, had two proper children and lived in a proper house in Roxbury. And, oh yes, two years ago he had been picked up in south Boston roaring drunk ready to drive his car home. After two hours in the tank the police had found out who he was and had driven him home themselves.

"What's up?" asked the man at the Bureau.

Eden told him. The man said, "You mean because this guy has an ancestor . . . ? Just because his family was in Research a hundred and fifty years ago? On this you think he's the guy we're after?"

"Yes," said Eden. "Put a picture of him on the screen, will you please?"

The picture showed Gilliant to be a rumpled-hair man with overhanging brows and heavy glasses. He held a pipe near his mouth with one hand, and Eden could see from the bit that it was well chewed. Eden nodded; he knew the type; the pipe was a pacifier and would almost always be in the mouth. Gilliant had a square chin with the right amount of stubbornness in it, and his high cheekbones gave him a hungry look. From what he saw in the picture, Eden was satisfied that this could be the man he was after. He said to the agent, "All right. I'm going up to the Boston area and look around and see what Gilliant has been doing."

"I think you're wasting your time, but good luck."

Next, Eden called Jeff Potter. "You know anything about Edgar Gilliant?"

"Outstanding tectonophysicist, bit of an oddball. Why?"

"Ever consulted him on continental drift?"

"No. No particular reason to. But now that you mention it, he'd be a good one to talk to on the matter. I'm not sure why we haven't already done so."

Eden thought a moment, then said, "How would it be if you got in

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touch with him on this drift problem in a couple of days. By that time I'll have checked him out to see if he's the man we want, and I hope he won't know I've been doing it. Even if I can't find out anything in Cambridge, you can talk to him and you might learn something from him, either about the drift itself, or whether he's doing it. Looks to me like we can't lose anything doing it that way."

"I agree. All right. I'll call him and ask him to come on over to the Advisors for consultation three days from now, the morning of the twenty-seventh. Anything else?"

"No. Has anybody learned much of anything on any of the programs?"

"Well, we've eliminated a few things, that's all. Nothing concrete."

"All right. I'll see you in a few days Good-bye, Jeff."

"Bye, Jim." Potter had started to tell him to be careful, but he thought better of it. Somehow it did not seem appropriate to tell a sessile boatmaster to be careful. They rang off.

James Eden stood in Harvard Square and looked around. His student card had been waiting for him when he arrived and moved into his Mass Avenue student's apartment. Anna Brackney was still back at Berkeley, protesting even as he climbed aboard the jet, but finally agreeing to the need to maintain some kind of watch at Berkeley. Eden had had two days of reflection to plan his approach to the Gilliant investigation.

He crossed Mass Avenue and went over to the Widener Library and found the index of geological texts. He quickly found a book by Gilliant titled, "Plasticity of the Earth's Crust," and he ordered it down and stood by the desk holding it in his hands. The next step was an important one, and he took great care in choosing his table. He saw one over by a window that seemed to be what he was looking for. The students at it were working all right, but they kept an eye out the window so as not to miss anything important outside on the street. Eden went over and sat down and made a fuss about getting ready to read the book he had; he sighed loudly and dropped the book on the tabletop a little too heavily and made himself ostentatiously comfortable. Then he started to read. For fifteen minutes he did not look up, not even when one of the students at the table said, "Boy, there goes one. Look at those hips." One of the others beat a gentle cadence as he watched out the window. On the third interruption, though, Eden half stood up to take a quick look out the window, and then quickly sat down again and began reading. He felt the mild approval of the rest of his table mates.

Eden pushed the book back, and shook his head at it and rubbed his face.

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"Problem?" said one of the others. He had a long thin face with a perpetually puzzled expression.

Eden nodded and said, "This guy Gilliant is a nice guy and all that, but I wish he'd explain things a little more."

"Geology major?" asked the puzzled one.

"Well, graduate work, I'm sorry to say."

One of the others said, "Yeah, I hear Gilliant himself is a nice guy, but these teaching fellows he puts on are real dogs. You had any run-ins with them?"

Eden said, "No. I try to stay away from them, but Gilliant is hard to catch up with when you want him." He shook his head.

The puzzled one said to one of the others, "I took a course under him last year and he was never around. He's up on the shore all the time."

Eden felt his hackles rise, but he said calmly, "That's where he goes, huh? Whereabouts on the shore?"

The one nearest the window said, "Who knows? Probably got a babe stashed away up there." He snickered, and they all chuckled.

Eden quickly tried to get the conversation back on the line. "How's he keep his job if he's away so much?"

"Does a lot of publishing, runs a big staff, got friends in high places. What else does it take?"

Eden said, "Should take a good job of teaching, but I guess if he has a big enough name and does enough research he doesn't have to be a good teacher."

The puzzled one said, "Yeah, he does a lot of research, too—keeps a large staff of fellows busy. Now, you take Palmer, my phys chem professor, there's one I can't understand how he keeps his job."

The name was greeted with hoots and gales of laughter, and Eden gathered that Professor Palmer was not near the top of the Fine Teacher list of this group at least. He listened for a while but could not smoothly guide the conversation back to Gilliant. After a while, he returned to his book, read for a few minutes, said, "The hell with it," and got up and turned in the book.

He went to another part of the library and found Gilliant's Cambridge address. It was on Auburn Street, not far away, and he walked there in ten minutes. He found the address and walked on by and continued around the block, but could not find what he was looking for. He circled nearby blocks, and on the second one he found it. It was a tobacconist, one of the old kind that sold nothing but smoking equipment. He went in and said to the wrinkled old man behind the counter, "I'd like a pound of the same blend Ed Gilliant smokes, please."

Eden's heart sank when the old man looked puzzled and said, "Who?"

"Ed Gilliant."

The old man shook his head and

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said, "I'm sorry, but I don't know any Ed Gilliant. I know most . . . Oh, wait a minute. Do you mean Professor Gilliant?"

"Oh, yes. I'm sorry. I don't think of him as a professor. We travel a lot together, you see."

The old man was all smiles. "Professor Gilliant smokes our Blend 105, has for years. We send it out to him when he's not in town to pick it up. Gets it in Ipswich the next day. Sent some out yesterday."

"Oh, that's too bad. I could have taken it up to him. I expect to see him tomorrow. But I suppose you send it right to his home there. That's not on First Street, is it?"

"No, I don't think so. The name isn't familiar. He lives on," the old man turned and flipped the pages of a brown-covered book, "Beach Avenue. One sixty-two Beach Avenue." He closed the book and turned back.

Eden said, "Oh, just as well. There'll be a crowd around when I see him. Do you have a pound ready to go?"

"Certainly do. It's one of our most popular blends, very mild, perfumed. Here you are. That'll be seven forty."

Eden paid him, went to his apartment, and made arrangements to get a car from an agency. He left for Ipswich.

Beach Avenue was on the outskirts of Ipswich, and it disappeared among a lonely stretch of sand dunes. Gilliant's house was one of three at the end of the road. It stood on about two acres of sandy loam. An ancient garage was built right on the road, separated from the house by about one hundred feet, and it was the garage that interested Eden. He had walked down the beach at the very edge of the booming surf, stopping to pick up and examine shells, poking through the thin strands of seaweed, bending to peer at a sand crab before it popped into its hole. He was the perfect image of a strolling beachcomber out for a late afternoon's walk before going home to the cocktails and the roast beef dinner. He carried a light stick that had washed up on the beach a mile away.

He walked past the Gilliant house, moving slowly, for there was a large pile of material washed up by the sea there. A few hundred yards beyond the house Eden stopped, looked at his watch, and then looked back the way he came. He then headed briskly toward the sand dunes, trying to convey the impression that he had stayed away too long and now had to hurry back on the road. His route took him past the house, which he ignored. It then took him past the garage, and he arranged to walk very close to it, not much caring if he were observed. There was a feature about the garage that had aroused his curiosity. The electric lines that ran to it were 440 or heavier, while the

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electric lines that ran to the house seemed to be the usual 220. As Eden went past the side door he swung his stick briskly and it flew out of his hand and fell in the brush near the door. Eden went to retrieve it, and as soon as he had picked it up he stepped to the door, opened it and went in. It was a normal two-car garage with one car in its place. Some tools leaned against one wall. There was no electrical equipment, but there was a door in the corner that seemed to lead into a tool closet.

A flight of stairs led down just inside the closet door, and Eden went down toward a faint whirring sound. The room below the garage was lined with concrete block, and Eden expected to find it filled with gear of one kind or another. It was almost empty, but along one wall stood a transformer. Power leads led to a screen-covered instrument with a series of switches and two glowing red lights. Out of the other side of the instrument, which was a cube about three feet on a side, was a pair of plates in the shape of a sector, one on top of the other, half an inch apart. The sector was mounted to the cubical instrument in a complicated hinged arrangement supported on the floor and in which a large vermier was particularly prominent. But the most significant feature in the entire room at the moment was the tall man standing with his back to Eden.

Silently Eden moved to one side to see the equipment better. Unquestioningly the leads from the transformer fed power into the instrument, which in turn fed radiation of some kind into the paired plates which looked very much like a wave guide. The man turned around, saw Eden, and visibly started. "Who are you? What are you doing here?"

Eden shrugged his shoulders. "Passing by, stopped in, heard the noise down here and so I came down to see what the equipment was."

"You're not supposed to be here. You'd better leave." His face was thin and gaunt, and his shoulders were stooped and his chest was hollow. He had a great shock of bushy hair, and his glasses were thick. Eden put him down as a physicist.

Eden nodded and said, "O.K., but how about the equipment? The vernier seems to be slipping. Is it supposed to slip like that?" He pointed at it.

The suggestion caught the man off guard. He turned and stepped quickly to the instrument and bent down to peer nearsightedly at the vernier. Eden was alongside him, bending down too, looking at the instrument closely, trying to judge its function. The thin man straightened and said, "There's nothing wrong with the setting. That's what it's supposed to be."

"I'd a sworn I saw it move. What would happen if it shifted?"

"You one of BROW?"

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Eden nodded and said, "Of course."

The thin man nodded and said, "Well, the entire sheer plane in this sector would have moved out of position and would have taken about six hours to reestablish."

"Figures. Why don't you use more power and then you won't have to worry about things like that?"

"Can't get the resonance then." The physicist warmed to his explanations. "The sensor in the output transducer is already at maximum output. It'd burn out at a greater load. Simple as that."

Eden nodded. Behind him he heard a soft footfall on the stairs. He said, "We ought to be able to design around that limitation. Why don't we work on it?"

"It's being worked on, believe me. But look at the problem." The physicist talked on while Eden listened intently. As if in thought, Eden turned toward the steps and saw the four men near the bottom, the first of them walking quietly across the concrete floor toward him.

Eden said, "Oh, hello there." Three of the four were tall and thin and wore glasses and walked stooped. They seemed to Eden to be either physicists or electrical engineers. The fourth was completely different. He was tall and broad and walked like a dancer, but his heaviness of build did not indicate dancing. There was a difference in his manner, too, that was noticeable. The manner of the three technical men was merely questioning, puzzled. But this one was aggressive, and there was a kind of delight in him at what he was about to do. He was a professional strong-arm man, probably a killer. And he stepped up to Eden and said, "Who are you?"

Eden pretended to be taken aback. "Why, I'm James Eden."

"What are you doing here?"

Eden glanced back at the man he'd been talking to and said, "Nothing. Just dropped in to talk a while." He regained his aplomb. "Why? What's the matter with you?"

The man's hand shot out and grabbed Eden's jacket front just beneath the neck. The man pulled Eden toward him with the hand and rammed the elbow of the same arm into his stomach. The position kept Eden off balance and Eden noted the slickness with which the man maintained it. Eden allowed himself to be held there while he gasped, "What . . . wha . . . what's the matter?"

"I said what are you doing here, buster, and I want an answer fast."

The physicist stepped away from the vernier and said, "Stop it, Joe. He's a BROW."

"How do you know that?"

"Well, he's here, isn't he, and he knows about the resonant scissionator."

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"That doesn't mean nothing."

"And he tells us he's with BROW." The physicist stepped up to Eden and tried to remove the hand that held his jacket front. "Let him go, Joe."

Joe hesitated, and Eden could almost see the wheels in his mind go around. Then Joe made up his mind and let go and stepped back and said, "O.K., you're right, Doc. Sorry, mister. We've just got to be careful."

Eden straightened his jacket, assuming a disgruntled expression. He said nothing. Joe walked over to the apparatus and checked several settings and said, "Looks all right. I'll stay with it for a while. Why don't you fellows go and finish your dinner? You can stay here and I'll show you how we run this thing." This last to Eden.

To Eden, it was clear what Joe had in mind, and that fitted in very well with his own plans. Eden said, "Oh good." He looked at the four scientists and said, "I'll be up later."

The physicist said, "Fine. See you later." The four of them went up the stairs.

Joe said nothing, and Eden could see he was waiting for the others to clear the building, out of earshot. Thirty seconds went by, and Joe said to Eden, "How come you looked us up?"

"Professor Gilliant suggested it."

"Is that a fact? *Professor* Gilliant, huh?"

The way he said it indicated that there was a slip somewhere; something like a password must exist, or perhaps he had used the wrong title for Gilliant.

Eden said, "Well, how about showing me how you run the resonant scissionator?"

"Before I do that, I'd like some answers from you to a few questions. Tell me about you belonging to BROW."

"What do you want to know?"

The hand shot out again and Eden again was bent forward, his face an inch from Joe's face. Joe snarled at him, "All right, punk. I want to know what you're doing here and I want to know right now. I'm sick of fooling with you. Now talk." He snapped Eden away from him and then toward him and slapped his face and flung him down on the concrete floor. Eden rolled with the slap and allowed himself to hit the floor. Joe drove a kick at his ribs, a display of cruelty calculated to cow him. Again, Eden rolled away enough to take the sting out of the kick. Joe reached down and picked him up and said, "All right. Let's have it."

It seemed as good a time as any to go to work, now that Joe's intentions were completely clear. Eden held his fingers high and his elbow low on his right side and slammed the palm of his hand just under Joe's nose. It snapped Joe's head back and broke his grip on Eden. Joe staggered back a few steps and

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blinked his eyes and stared at Eden unbelievingly. Eden, wide-eyed, looked back, acting as if the blow had been an accident. Joe growled deep in his throat and leaped toward Eden with his hands outstretched. Eden stepped between them and hooked a right into Joe's stomach and then instantly faded back, snapping up his right knee as he did. Joe doubled up and the knee caught him in the face as he doubled. He stood rooted, his legs rubbery, clutching his stomach with his left hand and holding his smashed nose with his right. He looked at Eden as he stood, partly doubled. Again, Eden stared back wide-eyed, mouth closed, relaxed, as if he were thinking about something else. But this time Joe realized that no accident was involved here, and Eden could see the light of recognition of extreme helplessness dawn in Joe's eyes. With it came the need to flee, but Eden stepped in again before Joe could move. He drove a palm again into Joe's face to move him over against the cement block wall and to straighten him, and then Eden hit him flush on the jaw, very hard for the first time. Joe's head snapped back and slammed into the wall and then he pitched forward to the floor and lay motionless. Eden quickly rolled him over and examined him. The eyes were open and glazed, but the pupils were not dilated, and they were the same size. Eden closed the eyes. He felt the skin on the side of Joe's face; it was warm and dry. He took the pulse; it was fast, but steady. Good. There did not seem to be any serious brain damage, but Joe would stay unconscious for at least ten hours.

Eden turned to the apparatus and removed the guard screen. He photographed the interior of the equipment from all angles, and then stepped back and photographed the entire layout. He put the camera back in his pocket and examined everything carefully. It looked like a complicated high-frequency broadcast apparatus. Eden could recognize conventional oscillators and amplifiers in the circuitry, but too much of it was unfamiliar. He replaced the guard screen and turned and heaved Joe to his shoulders and carried him up the stairs to the garage. He dropped Joe in a corner near some tools and covered him with a drop cloth lying there. Then he went out of the garage and went over to the house.

He climbed the five steps to the broad front porch and walked around it to the side that faced the beach. He stood there looking out at the surf breaking in the dusk, leaning on the rail. It was two or three minutes before the men inside came out. When they opened the front door, Eden started, as if he had been lost in thought. He said, "Oh, you startled me."

The physicist said, "How about a bite to eat. Had your dinner?"

"Thank you, no. I have a dinner date later on. But I'm thirsty. I'd

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appreciate a drink of water. And this view," he waved at the ocean, "is magnificent."

They nodded, and they all went back in the house; one of them got Eden his drink. The physicist asked, "Where's Joe?"

"Oh, he decided to stay with the scissionator," said Eden. "I'm surprised at him. He doesn't seem like the other members of BROW. How did he get in?"

"I'm a little surprised myself. He sort of gets things done for members. We don't worry about him and he doesn't worry about us."

Eden said, "I don't think he has the same goals as the rest of us."

"Oh, he doesn't. He is not really interested in embarrassing the thick-headed politicians the way the rest of us are. He's with us for money."

Eden nodded and drank his water and said, "I don't understand how the scissionator works. How long ago did Gilliant invent it?"

"About three years ago. The one here has been on the line for about nine months now. The other fourteen have only been operating for a month. I gather you're not a physical chemist."

Eden shook his head. "No Solology is my prime field, some geology."

The physicist nodded, while the others looked at each other and smiled. One of them said, "Well, none of us is a physical chemist, but what happens is this: Gilliant found a way to bring about vibration in the *d* orbitals in an atom, even in a crystal structure. The radiation wave is razor thin at the point of impaction on rock structure and fans out to about two feet in width at a depth of about two hundred miles. The scissionator is self-tuning in that it senses the reflected energy and then hunts to bring the reflected energy to a minimum. That means a maximum of absorption. The electrons in the *d* orbitals quickly achieve resonance, and the resonance spreads down the radiation wave with little additional power requirement. Effectively, the chemical bonds are broken, and after about six hours we have a slip plane through the crust right through the discontinuity and into the mantle. See it?"

Eden nodded.

"Now. With slip planes reaching down into the mantle along the coasts of all the continents bordering the Atlantic Ocean, and with no comparable slip planes in the Pacific, the heat welling up through the crust in mid-Pacific is enough to cause continental drift at an enormous rate. Intervening material is extruded sideways—may form some new land masses. The funny thing is that the theory behind such drift goes way back to one of Gilliant's ancestors."

Eden nodded again and said, "Yes, I know about him. I read his article in an old issue of *Science*." And if Eden had been a different kind of man, he might have con-

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gratulated himself. For that article had started the chain of reasoning that had led him here. He said, "So soon the world will all be one continent again."

The physicist said, "Well, yes. One world, with no more natural oceanic barriers. A brotherhood of man. Let's see what our wise politicians do then when they have to do something other than call down bad weather on anybody they want at their whim."

Eden did not argue. But these scientists, deep in their own work, did not have the remotest conception of the problems of government. Some, like Potter, understood but too many of them did not. Well, the recognition of the problem brought the solution immediately to mind. Lines of communication must be established between the scientific community and the government. It was a thing he would have to discuss with Potter. He said, "Well, thanks for the drink. I'd better be getting back to Boston. Anything I can do before I go?"

They all said, "No, thanks," and they all went out on the front porch to wave him down the beach in the gathering darkness.

Back in Boston, Eden turned in the car and went to his apartment and called Potter. "I have found that Gilliant is our man, and I've seen the equipment he's invented to do it, and I can give you a sloppy description of how it works. I've talked to some of the people in BROW, and I know why they're doing it. I think that's all we need for now. I suggest I join you at the Congress headquarters, and that we talk to Wilburn right away."

Potter did not seem surprised. He said, "Very good, m'boy. The timing is good, too. I've just had a call from Professor Gilliant, and he said he's willing to help us study the drift problem. I told him I'd call him back tonight after I've talked to Greenberg to tell him when to come on over for a preliminary conference. I think I'll just call Wilburn instead and set up a meeting tomorrow at the Congress instead of at the Advisors. You ought to get there early so we can talk before we see Gilliant."

"I'll be there first thing. See you at the guest house at eight, local time?"

"Fine." Having finished, Potter characteristically hung up with none of the usual good-byes.

Eden made his arrangements to jet to Sicily. He had six hours before his meeting with Potter. He boarded the jet, studied the pictures he had taken of the scissionator, and caught three hours sleep. He went to the guest house, showered and changed his clothes; then went to the breakfast room and sat down. He had not yet put his napkin in his lap when Potter came over and shook his hand and said, "I'm glad to see you. I've been a bit worried. You all right?"

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Eden smiled. "Sure am. No problems at all. How are you?"

"Very fine. Gilliant will be here at one, and we are to have lunch with Wilburn starting at eleven thirty. He may have a few people with him, too. By the time we meet Gilliant, we all ought to be primed, scientifically and politically. Let's have breakfast."

They ordered breakfast and sipped coffee while the computer cooked their food. Then Potter said, "Greenberg wanted me to ask you something. Let me see if I can remember his words. He said, 'Find out from Eden what the hell he did to Anna Brackney while he had her out at Berkeley.' "

Eden stared at him. "I didn't do anything to her. Nothing, for Pete's sake. We had some classes together, and I met her now and then to compare notes. But then I got on this line of reasoning and went to Boston. What does she say I did?"

"Well, nothing I guess. Greenberg says she spends most of the day bawling out the other Advisors and telling them they don't know what it's like outside. She even told Greenberg he ought to stop wasting so much time playing squash and get out and meet more people. It seems that Anna Brackney used to be a quiet, introvert. Now that she's out of her shell, I gather that they would like her to go back in."

"Well, I don't know anything about it. How's Greenberg doing otherwise?"

"Magnificently. He's pulled together a wealth of information on crustal geology."

"He's a very good man."

"I thought so, too. But he's even better than I thought. I had no idea what real experts could do with computers. Those people wrote programs that most geologists couldn't even dream of. We pulled out relationships that are going to set the geological world on its ear. They fed the computers textbooks and complete journals back for a hundred years, with a bias against any of the older stuff that contradicted recent stuff. What we don't know about the crust now isn't worth knowing, and the same is almost true of the mantle and core, and information is still pouring out. There wasn't much weather work going on over there for a week."

Their food came, and they ate without talking.

Then Potter said, "Yes, I've had my eyes opened by the Advisors. But you know something? The enormous effort and unbelievable productivity still did not produce the results you did."

Eden started to say something, but Potter waved him quiet, and continued, "Never mind. The calculated hunch and insight of an intelligent man still are beyond the scope of the greatest men-computer team ever assembled. There's something to think about there, too. But let's do it later." He pushed back his chair. "Let's find an empty con-

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ference room with a blackboard so you can tell me what you've learned. We have to get a story together for Wilburn."

At eleven twenty they left and headed for Wilburn's office. Sylvia knew they were coming and led them right into the inner office, saying, "He's not here yet, but he soon will be."

Neither one of them wanted to sit down, so they slowly paced back and forth. Wilburn came in at exactly eleven thirty, followed almost immediately by Tongareva. They shook hands all around, and then Wilburn sat down behind his desk and waved the others to seats. Wilburn was stern-faced, and he said, "I hope you have some progress to report."

Potter grinned at him and said, "Progress? Boatmaster Eden has all the answers you need. He has uncovered everything. He'll tell you about it. Jim?"

Eden picked up the story at the basement of the garage in Ipswich, and explained everything he knew. It took fifteen minutes, and the room was quiet for a good two minutes when he had finished. Wilburn sat holding his chin in his right hand, staring at the desk top. Then he looked over at Tongareva. The two men exchanged long glances.

Wilburn said, "As simple as that."

Potter said. "There are different things that can be done about this, many possibilities to choose from."

"Yes," said Wilburn, "but our knowledge makes the answers easy." He leaned back. "We could charge Gilliant and his people with a crime. The Chief Counsel tells me there's a criminal statute on the books everywhere about engaging in activities calculated to enrage masses of people, strike terror to their hearts, and some other such language. He feels we would have an excellent chance to get a conviction of anybody who deliberately and secretly pushed the continents around. But we don't want to do that. We want to solve this thing without leaving any bitter taste in anyone's mouth. Right?" Wilburn did not have to ask. He easily saw that Potter and Eden agreed with him, and he knew all along how Tongareva stood. "So this means we persuade Gilliant of the error of his ways and get him to call off his drifting program. To do that, we have to convince him we need him —that he can make a real contribution to the needs of the world. Can we do that?"

Potter and Eden looked at each other. Wilburn looked at Tongareva and then turned his eyes to the ceiling with an eloquent gesture of resignation that showed he recognized that once again he was trailing behind a proposal the others had already arrived at. "All right," he said. "Let's have it."

Potter said, "While I was working with Greenberg this last week, he told me you have some prob-

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lems with water allocation around the world. Is that right?"

Wilburn held himself down to a simple, "Yes."

"Well, Jim and I were discussing things this morning, and it seems to us that this resonant scissionator of Gilliant's might be useful to produce water from the crustal rocks. We don't know exactly how at the moment but it seems certain it could be developed. If the scissionator can extract water from rock, you could install one at a site where you need water and not deprive some other region of water from the atmosphere."

Wilburn sagged back in his chair and stared at them. Tongareva leaned forward and slapped both hands on his knees and laughed aloud. Wilburn said, "Why, that's a natural, just what we need to persuade Gilliant to come over to our side. Why, that's perfect."

He subsided, so Eden spoke up. "Not only that, but the goals are right for the entire BROW organization. The Brotherhood of the World will be working to supply men with their most important need, water. And they'll take particular joy in supplying water apart from the Weather Congress. So Gilliant will easily be able to bring his whole group to the problem. Oh, there are a few in it who want nothing more than to make trouble, but most of them are simply scientists who don't understand politics."

"Yes," said Tongareva, "the two cultures will come closer together as a result of this program."

They all sat in silence, thinking about the possibilities, and the more they thought, the brighter they seemed. Wilburn finally said, "Well, I think you two have solved this for us, and in a far better manner than I would have thought possible." He looked at them quietly for a moment, and then said, "All right. Is there anything else here I may have missed?"

"Well," said Eden. He looked at Potter and said, "You tell them."

"Sure. We think the scissionator may be the answer to some work we were doing on the sun when you called us down here. We'd like to take one up there and see if we can now do what we hope. If it works, we'll be able to control the sun with much more accuracy than we can now. We'd like to try it."

"Certainly. Anything else?"

Potter looked at Eden and Eden said, "Not at the moment, sir."

"I'm sure you'll think of something. Let's go to lunch." Wilburn got up and stretched. Then he said, "Look. We'll see Gilliant in an hour or so. Let me make the approach to him. Let me do the talking at first so I can bring him over to us. You can fill him in on details after I've set the scene for the whole arrangement. Is that agreeable?"

Potter and Eden smiled at each other, and Eden said, "It certainly is. We'd hoped you'd do it that way." ■

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"ON A GOLD VESTA..."

Or "Go Vesta, young man, go Vesta!" perhaps? Dr. Richardson reports on the at-last achieved weighing of one major asteroid, and its implications.

ROBERT S. RICHARDSON

We have a new first!

For the first time we have got a measure on the mass of an individual asteroid, in this case the asteroid Vesta. We can immediately use it to obtain valuable information, as we shall see.

A thousand years ago, when I was a youngster, there was a story that kept turning up in the science-fiction magazines which was a great favorite of mine. Usually there were four characters involved with whom you could more or less identify: a young foolhardy student scientist, his attractive nubile girl companion, a not-too-bright chap inclined to corpulence thrown in for comedy relief, and an old physics professor who was the brains of the outfit. Life for this foursome was a continual succession of mishaps in the asteroid belt. If they had to make a forced landing, they invariably picked an asteroid on the verge of disruption from radioactive energy. If not about to explode, it was on a collision orbit with Jupiter. Or it was menaced by some evil genius as the richest source of the vital substance necessary for the next interplanetary war. ("The

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power that controls *Saphronia* controls the solar system.") When a writer's powers of invention began to fail he could always rely on the asteroids to pull him out.

(Actually the most remarkable feature about these stories lay not in the wonders recounted on other worlds, but in the peculiar attitude of the characters toward one another. Apparently at blastoff they had all been turned into neuters! Still more remarkable was their placid acceptance of their situation. Any normal person would suppose they would have gotten busy and tried some medication or indulged in some form of experimentation in a desperation attempt to alter their condition. On the contrary, they never even seemed aware of the fact that they had a "condition.")

Considering how useful the asteroids have been to science fiction, and the familiar way we are in the habit of speaking about them, it is surprising when you dig down to discover how little we know about them. Our knowledge consists mostly of information on their orbits. But of the asteroids themselves we know practically nothing. With the spectrograph we can easily identify the atoms and molecules in a star a hundred light-years away. But since the asteroids emit no light of their own we have no way of getting at their chemical composition. We don't know their origin. We don't know their mass. We don't know their density. We know something about the size of Ceres, Pallas, Juno, and Vesta—the Big Four. We know they are undoubtedly irregular in shape and poor reflectors. The rest is largely guesswork.

The trouble is that we have made estimates regarding the nature of the asteroids, and these have been passed on and copied so many times that gradually they have come to be accepted practically as fact. The procedure has been to assume an albedo and use it to calculate the diameter of some asteroid. The albedo is a complicated function that tells us how well a planet's surface reflects light in different directions. A perfectly black planet that absorbs all the light incident upon its surface reflecting none would have an albedo of O. Mercury with an albedo of 0.058 is a planet that approximates that state. A planet that reflects all the light incident upon its surface would have an albedo of 1. Among the major planets Venus and Uranus have the highest albedoes of about 0.7. The commonly quoted radii and albedoes of the Big Four are given in Table 1.

We assume this mean albedo of 0.13 holds for ALL asteroids. Then knowing the distance and apparent brightness of an asteroid, with the aid of a few more assumptions, we can find its radius. By assuming a density we can get a value for its mass. Or by assuming a mass we can work in the other direction and

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come out with a density. In any case, we are always chasing ourselves around in a circle, or raising ourselves by our bootstraps—whichever figure you prefer.

What we need is one real mass without any gimmicks in it. But we can only find the mass of a body from its disturbing attraction on some other body. This is fairly easy to do if a body has a close companion, such as a satellite. Thus in 1877, Asaph Hall was able to calculate the mass of Mars only a few nights after discovering Phobos and Deimos. Previously the only mass of Mars was that determined by Leverrier from a century of observations. Only recently have reliable values for the mass of isolated bodies, such as Venus and Mercury, become available. It is doubly difficult to get a value for the mass of a tiny body such as an asteroid, that has neither a satellite nor any attractive force worth mentioning. Yet we are not without hope. . .

TABLE 1

Asteroid	*Radius (miles)*	*Albedo*
Ceres	244	0.06
Pallas	152	.07
Juno	124	.12
Vesta	109	0.26
Mean albedo		0.13

With a magazine like Analog, you would, of course, expect us to use computers for handling subscriptions.

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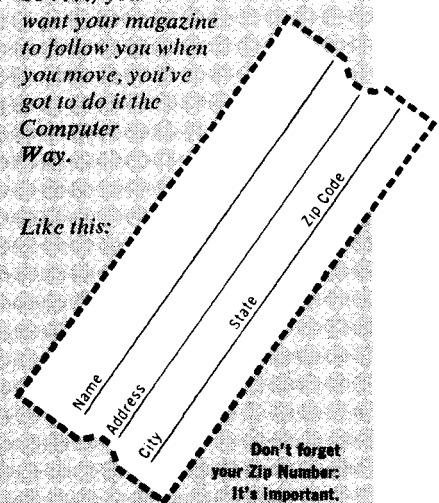

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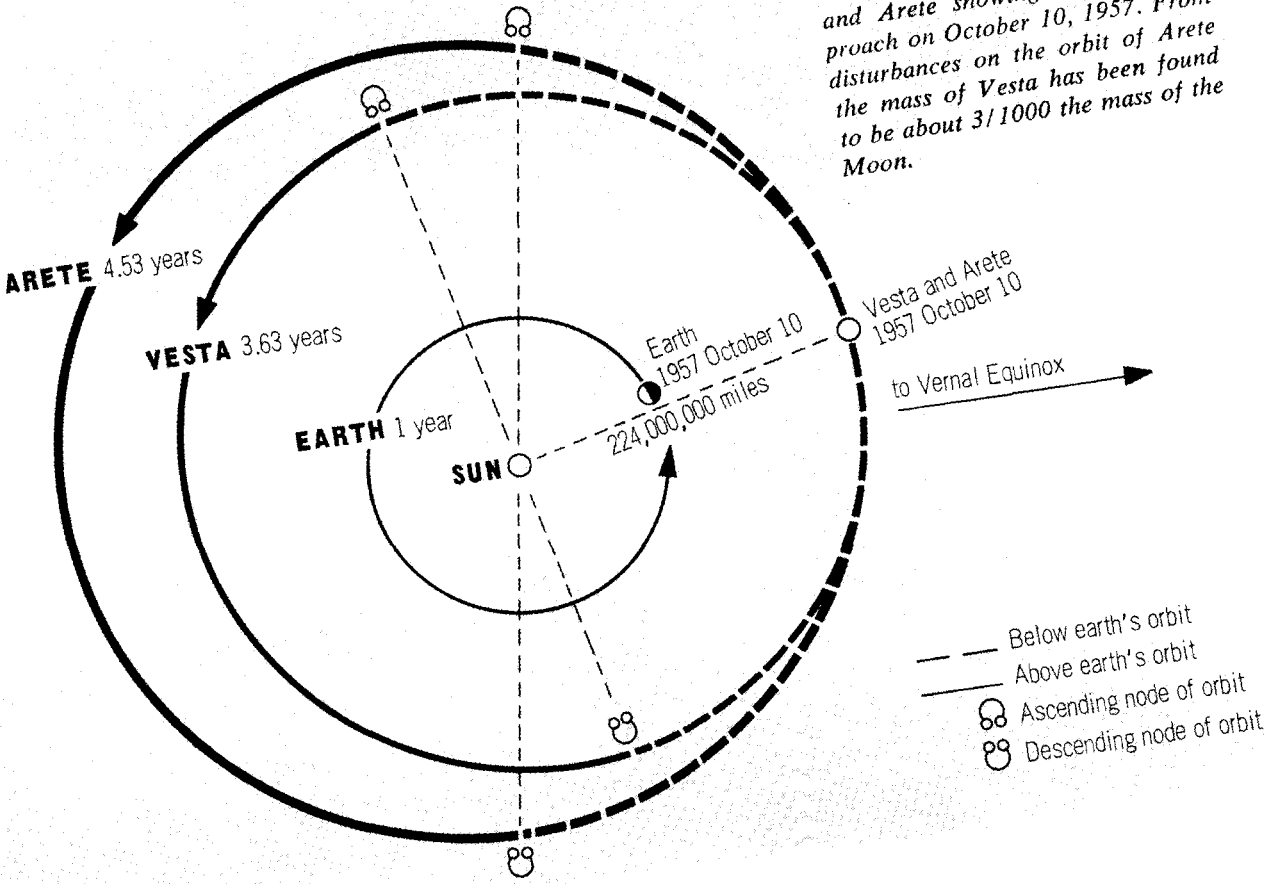

Fig. 1. Orbits of asteroids Vesta and Arete showing last close approach on October 10, 1957. From disturbances on the orbit of Arete the mass of Vesta has been found to be about 3/1000 the mass of the Moon.

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In a recent issue of *Science*,* Hans G. Hertz of the Goddard Space Flight Center, announced a provisional value for the mass of Vesta (4) derived from its attraction on Arete (197). Once every eighteen years Vesta and Arete come within about 0.04 astronomical units, or 3,720,000 miles, of each other. From seventy-two observations of Arete extending from 1894 to 1966 he obtains:

$$\text{Mass of Vesta} = 1.20 \pm 0.08 \times 10^{-10} \text{ solar mass.}$$

Expressed in perhaps more comprehensible terms:

$$\text{Mass of Vesta} = 0.0000399 \times \text{mass of Earth}$$
$$= 0.00325 \times \text{mass of Moon}$$
$$= 2.64 \times 10^{17} \text{ tons.}$$

Hertz hopes to improve this value when a search for more observations of Arete is completed. Assuming this present mass to be fairly firm, however, we can use it to give us valuable information on Vesta as well as other asteroids in general.

First let's go for the density. For the density should tell us something at least about its composition.

Supposing Vesta to be spherical, which it almost certainly is not, and using the radius in Table 1, we get a density of 7.85. This is about the density of iron. So high a density comes as somewhat of a surprise, as it has been customary to assume an asteroidal density about equal to the mean density of the Moon of 3.3, which is about the same as carbon. But Vesta appears to be made of sterner stuff.

This density of approximately 8 for Vesta is based upon the radius as measured by E. E. Barnard in 1900, with the telescopes of the Lick and Yerkes Observatories. With all due regard for Barnard's undeniable skill as an observer, I see no reason for regarding his measures as sacred. It is true that measures by Hamy, using an entirely different method, supported Barnard's results. Later determinations, however, gave radii of 200 miles for Ceres and Vesta, 162 miles for Pallas, and 100 for Juno. Here for purposes of discussion we shall adopt Barnard's values, with the mental reservation that they may be off by plus-or-minus 50 miles, or so.

It is tempting to assume the asteroids are homogeneous in composition. They are generally supposed to have originated in a catastrophe of some sort. But what shoestring evidence we have from the albedoes, however, indicates there may be considerable differences. From Table 1 we see that Ceres and Pal-

*"Mass of Vesta," April 19, 1968, p. 299. *Science* is the official publication of the American Association for the Advancement of Science.

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TABLE 2

Composition of Vesta	*Density (assumed) grams/cm³*	*Radius (miles)*	*Albedo*
Lithium	0.5	296	0.040
Carbon	3.5*	157	.144
Iron	7.8	120	.245
Silver	10.5	109	.299
Mercury	13.6	100	.352
Tantalum	16.6	94	.403
Gold	19.3	89	.446
Osmium	22.5	84	0.493

las have surfaces as poorly reflecting as the Moon and Mercury, whereas Vesta is a fairly good reflector. You may be surprised to hear that the major planets, the larger bodies in the solar system, do not necessarily have the best reflecting surfaces. This distinction belongs to the satellites Mimas, Enceladus, Tethys, Dione, and Rhea of Saturn, and Io and Europa of Jupiter, all with albedoes up around 0.8. These bodies have surfaces as white as snow.

Let us take different densities for Vesta corresponding to the lightest and heaviest metallic elements, and see what sort of radii and albedoes we get. The results for these various metallic Vestas are given in Table 2.

If Vesta were a sphere of pure gold from center to surface, it would have a radius of 89 miles, and an albedo intermediate between Earth and Saturn. At the price of gold on the London market of $39.10 per ounce this morning, Vesta would be worth 329 sextillion dollars, roughly speaking—$329,350,000,000,000,000,000. A rather nice item if it landed in your back yard.**

(Please don't think we are intimating that Vesta *really* consists of pure gold or any other metal for that matter. The elements in Table 2 were selected because their densi-

*This would make Vesta valuable indeed! The density of diamond is 3.50; carbon as graphite is 2.25. Ed.

**However, you—and the rest of your continent's inhabitants—wouldn't be around to enjoy the new wealth. The crater would probably be somewhere between Hudson Bay and the Gulf of Mexico in size. Ed.

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ties were distributed uniformly throughout the periodic table more than anything else.)

Vesta when directly illuminated at full phase suddenly comes up very bright, reflecting almost the same proportion of light incident upon its surface as Venus. But its brightness falls off very rapidly with increasing phase, indicating a surface even rougher than the Moon's. If we take a radius of 200 miles for Vesta, and assume—hopefully—a density of 15, we can make a fairly respectable planet out of Vesta. A body possibly massive enough to retain heavy gases, especially if formed at a low temperature. This would explain the high reflectivity of Vesta at full phase on the basis of a cloud-laden atmosphere. But such a speculative hypothesis hasn't a chance now that the mass is known.

We see that the densest metal osmium sets an upper limit to the albedo of Vesta of around 0.5, at most. At the other end a, lithium Vesta gives us an asteroid so large that it needs an albedo of only 0.04 to keep its brightness the same. Such extreme values seem improbable. An iron Vesta corresponding to about Barnard's measured radius seems most realistic.

Now let us make the albedo our independent variable and allow the radius and density to vary. The results in Table 3 show that we cannot possibly have a Vesta white as driven snow. For boosting the albedo above 0.6 gives radii so small that we compress our asteroid until its density begins to look ridiculous. We would turn Vesta into a new type of celestial body—not a white dwarf—but a gold dwarf. Remember that regardless of what substance you use, you cannot conjure up a Vesta with a smooth reflecting surface. Even if originally as bright as polished silver in the course of a million years, it would be rough and scarred from meteoritic impacts.

Knowledge of the mass enables us to obtain the first reliable information on some of the conditions a man would encounter on the surface as an asteroid. Table 4 contains values of the surface gravity and escape velocity for various

TABLE 3

Assumed albedo for Vesta	*Radius (miles)*	*Density grams/cm³*
0.04	298	0.52
0.1	188	2.05
0.2	133	5.80
0.3	108	10.66
0.4	92	16.4
0.5	84	22.9
0.6	77	30.2
0.7	71	38.0
0.8	65	49.8
0.9	63	55.4

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TABLE 4

Composition of Vesta	*Density (grams/cm³)*	*Surface gravity (Earth = 1)*	*Escape velocity (miles/sec)*
Lithium	0.5	0.0072	0.161
Carbon	3.5	.0254	.221
Iron	7.8	.0436	.252
Silver	10.5	.0528	.265
Mercury	13.6	.0627	.276
Tantalum	16.6	.0710	.285
Gold	19.3	.0792	.293
Osmium	22.5	0.0889	0.302

Vestas that writers and readers may find useful for future reference.

Since surface gravity changes inversely as the square of the radius, this quantity may differ considerably on planets of the same size even though equal in mass. Although all the Vestas in Table 4 have the same mass the acceleration of gravity on their surfaces has a range of 12/1. On an iron Vesta a man who weighs 200 pounds on Earth would weigh 200 x 0.0436 = 8.72 pounds. On a gold Vesta he would weigh considerably more owing to the asteroid's smaller size. On such an auriferous body he would register 200 x 0.0792 = 15.84 pounds. Notice the extreme range in escape velocity changes by less than 2/1.

The orbits of Vesta and Arete are shown in Figure 1. Since Arete was discovered in 1879, there have been five close approaches with Vesta in 1885, 1903, 1921, 1939, and lastly on October 10, 1957. Their next conjunction should be late in 1975.

Vesta was discovered by Olbers in 1807. It is distant 107 million miles at closest approach and barely visible to the naked eye under favorable conditions, the only non-telescopic asteroid. Vesta was the Roman goddess of the hearth. As goddess of the hearth fire she was the patron deity of bakers. Arete was the wife of the king of the Phaeacians and mother of Nausica and Laodamas, who figure prominently in the "Odyssey." She was noted for exerting considerable influence over her husband, a trait for which practically all women are noted today. ■

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CLASSICISM

Of course the definition of "classicism" will vary somewhat as you abstract different features of classical philosophies . . .

MURRAY YACO

Illustrated by Kelly Freas

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"There's glory out there," said the father to the son, tilting his strong, white bearded jaw to the heavens. "And may the Lord see fit to bring you back a rich and happy man."

"I won't disappoint you, Father," said the moist-eyed young man.

"One word of warning," said the father.

"Yes?"

The old man sighed. "Listen," he said, "here on Banktop IV we live simple, idealistic lives. But out there, out in the more densely settled regions of the galaxy, you'll find men who laugh at our old-fashioned values."

"You have no need to worry," the young man said simply. "After all, I have studied engineering for eleven years."

"I'm not talking technology," said the father. "I'm talking values."

"I completely understand," said the son, "that here on Banktop IV many of our ways would be considered quixotic by an outsider. After all, are we not the last of the race to practice economic classicism? I'm not completely naïve. I will take care."

The old man sighed through his beard again. "Look," he said quietly, "I am too old to believe in the efficacy of lecturing the young, but it is my duty to emphasize the perils of your youthful alacrity. First, remember that your enlistment in the Federation Engineering Service will not be a lark. You will be isolated on one of the fourteen planets that have been turned into laboratories by the Service. Each planet is governed by a project director whose power is absolute—a despot with only one interest: to be the first to develop a matter-transmitter. You'll find these men a ruthless sort, with no interest in our philosophy."

"I understand," the young man, whose name was Harold, said.

"One last word of warning, superfluous I am sure: Beware of those who might seek to seduce you with alien economic philosophies."

"I will not stray from classicism. I have no interest in heresies," the son solemnly assured the father.

"Here are the films of the plans," the old man said, handing Harold a small metal tube.

"Give my gratitude to those who have helped," Harold said.

"Service is honor," said the old man, "honor is money." The father stretched out a soft white hand. "Bootstraps," he said.

The boy grasped the hand and bowed his head. "Bootstraps," he said.

"My name is Harold," he said to the recruiting clerk. "I've been waiting four days—"

"What's yer hurry, kid?" The clerk stuck an oily nose into the young engineer's face. "You got no reason to hurry, see? You wait around here and take it easy. If you get pushy, we'll assign you to Gropious II. Ha!"

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"What's the matter with Gropious II?" Harold asked, eyes widening.

The clerk cupped a hand to his mouth, slid his nose to the side of the young man's head and whispered, "Work!"

"Work! What's wrong with work? You think I'm lazy? I may come from Banktop IV, where our ways seem quixotic to—"

"Listen, wise guy," said the clerk, taking a step back and placing liverish hands on his almost nonexistent hips, "don't give me that dreamy trash about how you're goin' to invent the first matter-transmitter. We see 'em all come through here. Comin' in and comin' back; big mouths to start, sorry when they finish."

"I don't know what you're talking about," Harold said primly. "I signed up for a ten-year tour. And if you think you can frighten me with stories about hardships on backward worlds—"

The clerk burst out laughing. "Hardships," he gasped, baring huge yellow teeth. "You'll wish there were some hardships. Ha! They'll take care of you, all right. Don't you worry your pretty red head about hardships." The clerk's face softened for a moment.

"Something wrong?" Harold asked.

"No," said the clerk, a reminiscent look in his eyes. "I was remembering how I started out with Federation Service, twenty years ago, almost to the month. I was a chemist." Suddenly the hardness returned, "A chemist and a good one, and they turned me into a drudge. You hear? A drudge!"

"A drudge?"

"Listen, you dummy," said the clerk, grabbing the young man by a lapel, "don't you know what's going to happen out there? Can't you see how they'll take you, fill you up with lies about how important you'll be to the project, and then plug you into a slot where the only creative thing you'll ever do is adjust the height of your drafting board." The clerk paused. "What kind of engineer are you, anyway?"

"Power engineer," said Harold.

"Even worse. You'll be assigned to planetary housekeeping for the first two years."

Harold smiled with sudden understanding. Nonchalantly he brushed the clerk's hand from his coat. "You evidently don't understand. I signed up for design work. I'll be using certain analytical devices in my work, of course, but I intend to do something quite revolutionary."

The clerk sighed. "They all do. And when they get to their assignment they find that the whole operation is so completely mechanized there's nothing left to do except push buttons."

"I can see that you're a bitter man," said Harold. "And I'm really not interested in your past inability to make a contribution to science.

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What's more, I assure you that I did not spend eleven hard, dull years in engineering school in order to be a legman for a computer—"

"Gropious II," said the clerk. "Today."

Two months later, Harold decided that he'd had enough of Gropious II. He had no argument with the planet itself, covered as it was with speckled blue and pink trees that stood out magnificently against the magenta sky. A bit like home, he reflected nostalgically from time to time as he supervised the garbage-disposal system that served the entire planet. But hardly the kind of work he had originally had in mind.

He took his complaint directly to the planet's project director, a nervous little man named Brenner, who listened attentively as Harold explained his position.

"I'm not really objecting to the six-hour-day," he began, "but I'm afraid that I'm disappointed in the assignment. You see, sir, I'm a power engineer, and I have some rather new ideas that I'd like to develop—"

"They all do," said Brenner.

"I beg your pardon?"

The project director yawned and rose from behind his desk, "Look, my young friend, I'm on your side, see? But there are fourteen engineering teams on fourteen separate worlds who are trying to be first in the development of a matter-transmitter. Now, if we let every engineer, on every team, go his own way—"

"Exactly!" exclaimed Harold. "What the project needs is an approach based on economic classicism. We, on Banktop IV, may seem quixotic to you outsiders, but I assure you—"

Brenner squeezed thin, blue lips together and shook his head emphatically from side to side. "No."

"I assume, sir, that you don't acknowledge the role of imagination and freshness and originality in the creative process. I assume, then—"

"Assume nothing, boy, except that you're doing a dandy job with this planet's garbage. Keep at it, and in a few months, we'll see if we can find you a spot on one of the computers. We might even sneak you through as a junior electrician."

Harold kept his patience for another three months. They kept their promise and gave him a junior electrician's rating. The routine proved dull, but in the evenings he was in a position, at last, to do some serious work of his own. They found out about this three weeks from the time he began the new job.

"Ordinarily I'd let this be handled by a subordinate," Brenner began, "but I've taken a special interest in your case."

"I appreciate it, sir," Harold said.

"You realize, of course," said the project director, "that you should

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really be under arrest. After all, unauthorized use of programming devices is a serious offense."

"I was doing nothing wrong," the engineer said simply. "From my point of view, I was helping to make your job easier."

"I beg your pardon?"

"It's like this," the young man explained matter-of-factly, almost as though he was spelling it out for a child. "You want to be the first to develop a matter-transmitter. The need is acute. Federation Engineering Service has recruited from every corner of the universe, has set up an expensive and complicated empire in the hope of successful development." He paused.

"Keep going," Brenner said, "and it had better be good. I don't like it when people spell things out for me."

"Very simply," the young man said. "You are going about the whole business in the wrong way. You assume that by funneling in all of the known data of the universe, and then programming the appropriate questions for an almost infinite duration—"

"Snap it up," Brenner said.

"I have approached the problem differently. With my knowledge of economic classicism I have boldly slashed through the major problems and am on the verge of producing your matter-transmitter. This success, of course, is based on the difference in our psychologies. You may have difficulty understanding this, since we of Banktop IV appear quixotic to outsiders—"

"I can't decide," Brenner said thoughtfully.

"Decide what?"

"Whether to send you to prison, transfer you to another project, or send you back to garbage duty."

"You can't! Please, let me explain about classicism! I can prove that—"

"Shut up!" Brenner snapped. "I've just decided to transfer you to Doro III. The project director there deserves somebody like you. And one more word about economic classicism, and you can practice it in a Federation prison. I never could stand religious fanatics."

"In a few months you'll be sorry," Harold said. But he said it to himself.

On Doro III, he was met at the ship by two guards. They took him directly to the office of the project director, a man named Zeplin. He wore a fixed, malicious smile.

"The odor of your success precedes you," Zeplin said. "How'd you like to take over the garbage problem here?"

"Do I have any choice?" Harold asked with measured politeness.

Zeplin grinned. "Actually, no. It's hard to find a good garbage engineer, and even harder to keep him on the job."

"I'll make you a deal," the young man said.

"Look," said Zeplin, "you're a

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troublemaker, a believer in classicism and a record that lists an undeserved reprieve from a Federation rap. Get this straight: you're in no position to be making deals. Besides, it's not such a bad career and the pay is good."

"Look—"

"From now on," said Zeplin with finality, "garbage is your bread and butter."

From his small office on the fifth level of Planetary Garbage Control, Harold surveyed the lanscape beyond his window. Not too much resemblance to home, he admitted as he watched three huge cargo spacers drop through a mottled green sky and land almost simultaneously; but he certainly was closer to success than he had been on Gropious II.

Momentarily his vision clouded as he remembered his father's words: "You'll find men who will laugh at our old-fashioned values."

"I must be tolerant," Harold told himself. "Besides, with success so close at hand there is certainly no time for bitterness."

At night, after duty hours, he worked relentlessly on the final plans for his device. As the work progressed, he became aware of his need again for the assistance of a computer. He was close, so close. Yet he knew that without the basic information he required he was lost. Certainly he couldn't presume upon his thin acquaintance with Director Zeplin. There was Brenner back on Gropious II, of course; and even though the man was easier to manipulate, he was hardly accessible. Maybe, Harold considered thoughtfully, Brenner could be made accessible. He sat down and wrote a letter to his father.

A month later, Zeplin summoned Harold to his office. "How'd you like to take a trip?" he asked, tightening his smile.

"Do I have a choice this time, too?"

"Don't get smart." The director pointed to his desk. "Got a message here from an old friend of yours. Director Brenner on Gropious II. He seems to have a weakness for economic classicists, whatever they are."

"A man of small imagination," said Harold.

"Look. Never mind the hard time. The old boy's got trouble. Somehow the garbage system plugged up over there and the whole planet's at a standstill. Brenner wants you released for a while to get things back in shape. The odor of your success permeates the heavens. You leave tomorrow."

"I got to hand it to you, boy," said Director Brenner. "Two weeks ago things were so plugged up I thought we'd have to evacuate the planet. What a stink. How'd you get things fixed up so fast?"

"A very simple problem, really," Harold said. "I used some imagina-

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tion, mixed in a little reason, and then boldly—"

"Garbage," said Brenner. "Why don't you drop that classicism kick and go straight. If you got to have religion, why not look up something decent like neo-phenomenologicalism; or if you're the fancy type, how about zen-activism or even—"

"Economic classicism is not a religion," Harold said angrily.

"Have it your way. But whatever it is, it's no good for a talented garbage engineer like you. Where'd you get the knack for it?"

"I've got a septic tank for a mind," Harold said bitterly.

"Say, speaking of crazy things," said Brenner, "about a month ago I got a package from Banktop IV. *Really* out in the sticks."

"My home," Harold said.

"I know. Funny thing, too. It was addressed to me."

"What was it? A gift?"

"Yeah," Brenner said, looking puzzled. "A bunch of fruit. Wonderful stuff. Had a note that said, 'Good luck, you'll need it.' "

"You evidently have a secret admirer."

"Word gets around," Brenner said modestly. "Say, how's that matter-transmitter of yours? Knocking 'em dead? Ha!"

"As a matter of fact, I'm almost through with the final development. And I was going to ask you a small favor—"

"What now?"

"First," Harold said, "let's both agree that I'm the victim of a harmless delusion."

"Agreed," said Brenner.

"Next, let's admit that it would be presumptuous of me to ask you to acknowledge that you owe me a small favor."

"Keep talking."

"I'd like to spend about a day with one of the smaller computers."

Brenner sighed. "O.K. But day after tomorrow you better forget classicism, 'cause it's back to Doro III and garbage."

On the way back to Doro III, Harold thought admiringly of his father. He never would have thought of fruit as a vehicle for the mutated bacteria. Exotic tobacco, perhaps, or even wine. Not that it made much difference, as long as it eventually ended up in the planet's disposal system where the little creatures could multiply to their heart's content. He wondered if the antibiotic that he had used as a countermeasure would be effective for very long.

"From what I hear, you did a beautiful job," said Zeplin. "You got a knack for this sort of thing, boy. Too bad that you won't be serving out your full ten years." Zeplin grinned.

"How come?" asked Harold, who had been summoned to the director's office a few hours after his return to the planet.

"Take a look out there." Zeplin

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motioned toward the view beyond the window.

Harold walked over and peered down on the scene below. He saw the administration buildings of the planet's large spaceport and the huge complex of ship hangars and research facilities that ringed the three-meter square landing area. "I don't see anything—" he began.

"Exactly," Zeplin said. "No ships. Hasn't been one in for a week. The project's budget has been stripped to the bone."

"But they can't!"

"Can and have," said Zeplin. "It seems that after twenty years the taxpayers are getting tired of chasing a will-o'-the-wisp. This operation closes down in thirty days. Out of fourteen projects, four will remain—at half-staff.

Harold's face was dead white. "How about Gropious II?"

"Leave it to Brenner to keep his empire intact. He's one of the four."

"I'm relieved," said Harold. "Thank goodness, my work is complete."

Zeplin shrugged. "What will you do? Head for home?"

"No. Not for a while. I think I'll take a side trip to Gropious II and discuss old times with Director Brenner."

"You got pretty fancy friends for a garbageman," said Zeplin.

"And I always know where my next meal is coming from," Harold said.

During his last day on Doro III, Harold made final preparations for his visit to Director Brenner. He made a few purchases, including a large traveling chest. Into this he placed his few personal effects and several pieces of apparatus that he'd accumulated during his stay on the planet.

He caught the last commercial passenger ship that would ever, in all probability, visit the planet. It took him to Quenrog I; here he shipped for Gropious II, changing his name on his ticket to Fenwick P. Abbot.

On the ship, he struck up an acquaintance with a stewardess, who seemed inordinately fond of engineers. Her name was Doris Klonk. "I have no mechanical talent myself," the girl modestly explained, "but I am absolutely fascinated by engineering. My father was an engineer."

"Really?" Harold said, drawing the girl c'oser while kicking his cabin door shut wi'h a backward fling of his foot. "What type of engineer?"

"He was a specialist," Miss Klonk breathlessly confided into one of Harold's tingling ears. "A lavatory engineer."

"And undoubtedly a good one," said Harold, running a hand through pink-blond curls.

"It was such a tragedy," said the girl. "He was on the verge of something important when it happened."

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"What happened?" asked Harold, bringing her close.

A solitary tear cascaded from a closed eye. "He was drowned," said the girl.

"Drowned?"

"Caught in a revolutionary flushing device and drowned." Miss Klonk burst into uncontrollable tears.

"I'm very sorry," Harold said. "I am able to commiserate completely, since your father and I were in related fields." He released the girl and sat on the edge of the room's only bed.

"Father was an idealist," said Miss Klonk, dabbing at violet eyes with an orange-scented handkerchief.

"Interesting," said Harold. "For a while I thought that I was the last specimen of idealism left in this part of the universe."

Miss Klonk seated herself next to Harold, crossed her legs and attempted to pull her skirt over exquisite knees. "You must try to understand," explained Miss Klonk, "that I come from Boogey X, where our ways often seem quixotic to outsiders. We are adherents of an ancient philosophy called classicism."

"I understand completely," said Harold enthusiastically. "Truly, you are an amazing young woman. You must tell me about the manners and morals of Boogey X. I did not know that there were any other classicists in the universe."

"We are an old-fashioned and idealistic people," said the girl, reaching down and tucking her damp handkerchief in the top of her stocking.

"Inspired qualities," said Harold. "The mere mention of them reminds me of my own duty; for as you already know, I, too, am an idealist. And since we are landing on Gropious II tomorrow, I must begin my final preparations for the task at hand." He stood up.

"You are an amazing person," Miss Klonk said tonelessly as she rose from the edge of the bed.

"After the supper hour you must come back. We will discuss Boogey X and your father's fascinating work. And you must give me an address so that I may correspond with you."

"Certainly. I will look forward to it," said the girl. "What did you say your specialty was?"

"Garbage," said Harold.

"After the supper hour," said Miss Klonk.

Project Director Brenner was napping on a couch in his office when a communicator in the wall announced the urgent need for his awakening.

"How come?" asked Brenner, rubbing tiny fists against squinty eyes.

"Spaceport Control says to tell you that an unauthorized ship has landed outside the experimental area." The voice hesitated.

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"So what?" said Brenner. "Issue 'em a summons, fine the idiot and handle it without bothering me. I'm a busy man."

"Under the circumstances," said the voice, "we thought it was justified. That is, since the ship was not picked up on any of the scanners at the field—"

"What do you mean, not picked up? If the thing has mass and lands on the planet, your traffic control instruments will show records of the point where it entered atmosphere, the time—"

"Yeah. That's what we thought. Only nothing was picked up."

"I'll be right over," said Brenner.

The manager of the spaceport was a fat man named Thompson. He was Brenner's brother-in-law. "See for yourself, ol' buddy. Nothing recorded on any of the report sheets."

"Impossible," snorted Brenner.

Thompson grinned wolfishly. "There's only one answer, and once you've heard it the whole thing becomes your problem."

"Spill it."

Thompson composed his face. "The ship appeared out of nowhere."

"Where the hell is it?" Brenner asked.

"We got it monitored from the tower. It's on camera, now." Thompson walked to a control board, pressed a button, and a screen at the far end of the room flashed into life.

"Pretty small ship," said Thompson. "About a hundred tons."

Brenner looked thoughtful. "Nothing unorthodox about the lines. How about the crew?"

"We haven't tried to contact the ship. Figured we'd defer to you, ol' buddy, until we get your opinion. I've kept hands off. It's monitored by the camera, but nobody's been allowed close to the area."

"What's that black spot near the tail?" asked Brenner.

"Where?"

"Bump up the magnification."

Thompson walked across the room and fiddled with two buttons. "See anything?"

"Awk!" Brenner uttered.

"What's wrong? You look like they cut your appropriation in half again."

Brenner rubbed a hand over his eyes and said, "Tell me if I'm nuts. You see somebody sitting on a box next to the tail of that ship?"

"What d'ya know! What'll we do now?"

Brenner sighed and said, "I'm going to issue a warrant for the arrest of a garbage engineer."

An hour later Thompson reported back to Brenner. "Got a little trouble, ol' buddy."

"How's that? You afraid of freckle-faced religious fanatics?"

"That kid is nuts," Thompson diagnosed unnecessarily. "We went over with the warrant and a couple of guards from the field. Told the kid that he'd have to come with

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us, and he says 'Stand back or I'll blow us all to kingdom come.' "

"Ha! And he talks about freshness and originality. What did you do then?"

Thompson shrugged. "I'm no coward, but the kid explained that he'd hitched himself into a photoelectric circuit that is tied into a bomb on the ship. He says that, if he walks farther than a hundred feet from the ship, the whole planet will crack in half."

"Listen!" Brenner shouted, "I don't care how you do it, but I want that kid and that ship pulled over into Experimental. If he really has come up with a matter-transmitter, I'm going to get my hands on it."

"Relax, ol' buddy. Your smelly little friend agreed to come along quietly, as long as he stayed next to the ship. About an hour ago, we put a hydraulic ramp under the two of them and stashed 'em in a hangar."

"Maybe my sister wasn't psychotic, after all," said Brenner. "When can I go talk to the kid?"

"He gave me a message for you."

"Yeah."

"Yeah. He says to tell you he's got a harmless delusion for sale."

"I'll go right over," said Brenner.

A few minutes later, Harold was talking to the project director. The two men sat side by side on the traveling chest that Harold had purchased on Doro III.

"I might as well tell you," said Brenner, "that I've had us locked in here. So it's just you and me and your gimmicked ship."

"I'm ready to negotiate," Harold said. "You give me a check for a billion credits, payable to my account at the Federation Bank on Banktop IV, and I'll give you the plans for the device. After all, I developed the principle on my own time; therefore, I'm within my rights to offer it to the highest bidder. And I plan to leave here in three days."

"Look," Brenner said painfully, "just because you dropped in here without being picked up on the screens—that's no proof. I've already talked to a couple of our engineers and all they think you got is some kind of gimmick."

"The professional opinions of your so-called engineers don't interest me in the least," said Harold. "They haven't the psychology to imagine the possibilities that economic classicism—"

"Have it your way," Brenner said, "but I'm not taking anybody's word for anything. I have to admit that the ship appeared out of nowhere, but unless you can make it go *poof* and disappear in front of my eyes, I want time for a complete study. A billion credits is all that's left of my appropriation. If you think I'm going to just turn it over without thoroughly testing—"

"That's exactly what you're going to do," said Harold.

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"You know," Brenner said, "I used to think that you were a kid with a little fundamental common sense. But I can see that you learn the hard way. So, suppose you just sit here all by yourself for a few days and think it over. You might be a little hungry and thirsty, but I think you'll be closer to my point of view."

"I doubt it," said Harold.

On the way out of the hangar, Brenner told Thompson, "Lock it up tight. Nobody in or out for three days. I want a guard stationed every fifty feet all the way around the hangar."

Thompson grinned. "How about a little compassion, ol' buddy? How about the necessities of life?"

"There's a lavatory in there," Brenner said. "That's all the necessities our little rabble-rouser needs for the next three days."

For the first time that day, Brenner was right.

"Today's the day," said Thompson. "You goin' to play it alone, again?"

"Don't worry," Brenner said, "I can handle that kid."

Thompson motioned the guards to open the hangar door. "Good luck, ol' buddy."

"I won't need it," Brenner said, already tasting his triumph. "Economic classicism, like the dinosaur and monogamy, is about to succumb to intelligence."

Brenner walked into the hangar. He saw Harold seated on his traveling chest. He was nonchalantly munching a sandwich. Brenner barely had time to curse himself for not having searched the chest, when he noticed that one hundred tons of spaceship was missing.

"It was really very simple," Harold explained to the former Miss Klonk, as they honeymooned their way back to Boogey X for a short visit with Harold's new relatives.

"Engineering fascinates me," said the girl. "I wish I understood more."

"You will shortly," Harold said, sitting down next to her on the edge of the cabin's bed. "And, since you come from a culture much like my own, I'm certain that you will understand the idealism involved."

"But how did you make the ship just disappear?" asked the bride.

"I'll start from the beginning," Harold began. "I arrived here under an assumed name, in case Brenner decided to check the lists of disembarking visitors. I left the passenger ship with my travel chest, and walked to the edge of the spaceport. At dusk, I opened the chest, put on a cold-insulated suit and went to work. You'll remember that the ship appeared out of 'nowhere' so to speak?"

"Go on," said the new wife.

"Actually, the ship was made out of irradiated structural plastic membrane. It took me two months

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to design the material to proper shape and to calculate stresses for the two or three situations that I might encounter. That's why I needed a computer."

"A balloon?"

"A balloon that happened to weigh a hundred tons. Completely rigid and a hundred tons. It had to be, since I surmised that it would be picked up on a hydraulic ramp and put into a hangar."

"A balloon is not rigid," said the girl, knowingly.

"I inflated it at night with a small pump that I brought in my travel chest. Then, using the same pump, I tapped into the community water system and flooded selected compartments."

"A hundred tons of water with a little pump? And all in one night?"

"I can see that, as a classicist, you're naturally an intelligent girl," Harold said approvingly. "Actually, it was no problem at all. The gravity on the planet is one-sixth standard. Nighttime temperatures drop close to minus seventy degrees. The water, of course, was quickly frozen—thus providing the required rigidity."

"But you made it disappear! How—"

"Patience," said Harold, placing a hand on his bride's dimpled knee. "When I pumped the water into the balloon, as you call it, I added a small amount of powdered, coated lithium. It was a simple matter to send a small electrical charge through the ice—thus causing a reaction between the lithium particles and their polymer coating. Once the lithium was in contact with the oxygen in the ice, melting began immediately. I ran a short line from the ship to the hangar's lavatory, and most of the ship rapidly disappeared down the drain. The irradiated plastic vaporized in a small fire that I made. The few ashes were flushed into oblivion—"

"Poor father!" sobbed the girl.

"Sorry," said Harold. "Quite thoughtless of me.

"Anyway," he continued, hoping that talk would stem the flow of tears, "when I gave Brenner my plans in exchange for his uncancelable check, I was really turning over designs that had been carefully prepared months ago by a team of the leading physical scientists on my home planet. Everything is expressed as abstrusely as possible, and it is all nonsense, of course. It will be months before they know what they have. By now the money is the property of the planetary government on my home world. In keeping with our idealistic traditions, a young man's first profit-taking belongs to all the people."

"I suppose you're proud of yourself? I suppose you—"

Harold turned and looked at the girl, wondering if he had detected censure in her voice. "No, not

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proud," he said. "Satisfied. My father would be proud, of course. After all, all of my actions were in keeping with the oldest tradition of economic classicism. I produced a large profit with virtually no venture capital, at somebody else's expense." Harold looked into her eyes. "Your cheeks are tear-stained," he said. "Here, let me get your handkerchief."

He put one hand on her pretty pink-blond curls and with the other he reached for the orange-scented handkerchief tucked in the top of her stocking.

"My darling," he began, "enough talk of the ancient values of Banktop IV—"

Abruptly she pushed him away. "While we're on the subject, I suppose I should tell you about a few of my ancient beliefs." Her voice had a new quality, an interesting quality that Harold had never heard.

"On Boogey X, my home," she explained, "we are a hard-working, ambitious, reliable and moderate people. We are fond of lawns, our homes, children and regular vacations."

"How curious," Harold heard himself say.

"And quixotically enough," the new wife continued, "we also believe in honesty—honesty in the old, old-fashioned sense of the word."

"Interesting," Harold murmured, reaching out and pulling her down against him.

The girl began to sob.

"I'll get the handkerchief," Harold began.

"First—promise me."

"Hm-m-m?"

"Promise me you'll spend some time trying to adjust to the values of my home world. Promise?"

"Just what *kind* of classicism do you practice on your world," Harold asked with the beginning of tardy caution.

"Why, *middle class*icism, of course."

"I see," Harold said.

"Promise me that you will try our ancient way of life, just for a while. Promise me as though you meant it. Promise me in the name of . . . of classicism."

"Classicism," he said woodenly, as their ship sped irrevocably toward Boogey X, where Harold was destined to live a rich, full life as the most efficient—if somewhat quixotic—superintendent of garbage disposal that the planet had ever known. ■

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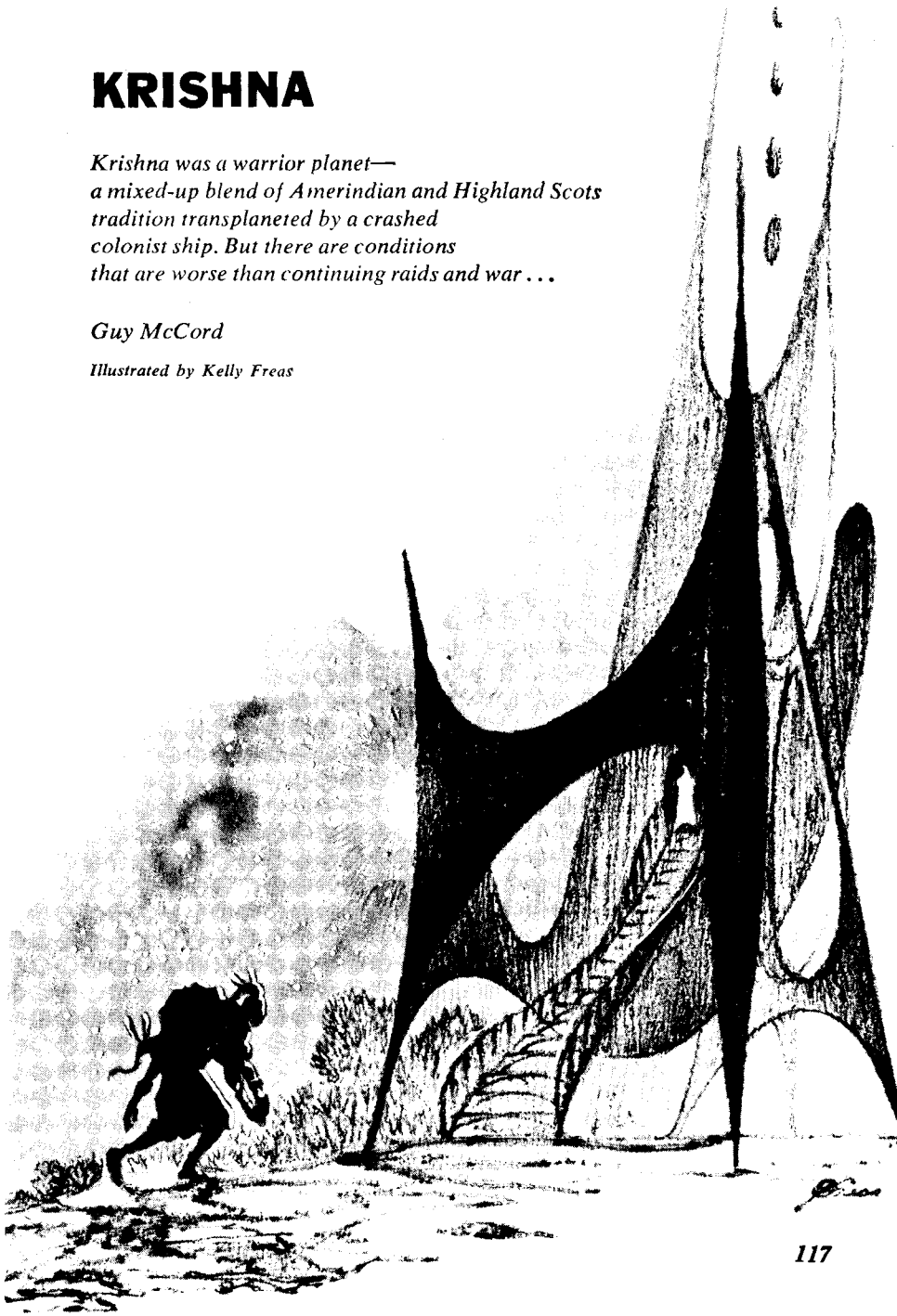
KRISHNA

Krishna was a warrior planet—
a mixed-up blend of Amerindian and Highland Scots
tradition transplanted by a crashed
colonist ship. But there are conditions
that are worse than continuing raids and war . . .

Guy McCord

Illustrated by Kelly Freas



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I

John, Raid Cacique of the Hawks, drew rein and looked out over the valley below. Don of the Clarks came up beside him and together they contemplated the town. The rest of the troop remained behind awaiting their leader's command.

"There it is," John said. "I do not think it is the same one as before, the *Golden Hind*."

"No," Don said. "This one is perhaps larger. Nor, from what we have heard is it alone. They have landed at least a dozen places on Caledonia. This time, they have come in more force."

The spaceship they were discussing sat perhaps half a mile from the walls of Nairn.

John raised a hand in signal, and proceeded in the direction of the main gate. He said to Don of the Clarks, "The Nairn Phylum is noted for being quick on the trigger. I hope we can approach sufficiently near to explain our mission, before they decimate us."

Don shrugged and grinned sourly. "We are all volunteers and knew the chances we'd take. Offhand, I cannot remember hearing of such a case—the clansmen of one Phylum approaching those of another, between the meetings of the Dail. However, it is not against the ban and the Keepers of the Faith found the correct procedure in the Holy books."

"Let us hope the sachems of Nairn have heard of the procedure," John said. "Frankly, I feel naked without my claidheammor."

There were sixteen in all, in the little troop, two from each clan of the Aberdeen Phylum. They were weaponless, save for the short skean each wore at his left side. They hid their apprehensions from each other, but all felt as naked as their cacique without their swords and carbines. Each had seen the town of Nairn before, but only on raid.

Why they were not fired upon as they neared the gate, John of the Hawks could not imagine. Perhaps it was the slow speed at which they progressed. Perhaps the warder felt that the nearer he allowed them to approach, the more certain was his eventual fire to be complete in its destruction. Perhaps he even hoped to count coup on some of them, rather than kill them outright.

Perhaps various things, but the fact remained they were not greeted by a blast of carbine fire. John, in front, finally raised a hand in the universal gesture of peaceful intent.

"Clansmen of Nairn," he shouted. "We come in honorable peace and are unarmed."

The heavy wooden gate was closed and he couldn't see from whence came the answering shout.

"What do you will, Raid Cacique of the Aberdeen Hawks?"

John was mildly surprised. The

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answer was in keeping with the procedure found by the Aberdeen Keepers of the Faith in the Holy books. Evidently, the chiefs of Nairn had also been delving in the old volumes. It was quiet unprecedented in the memory of living clansmen.

John shouted, "We come in peace to investigate the rumors of ones who claim to be holy men from Beyond."

"Then enter in peace the preserves of Nairn." The voice departed from printed procedure now, and added, with a stubborn inflection, "But we shall not allow you within the gates."

John was inwardly amused. There were only sixteen in his band, and unarmed at that. Aberdeen's reputation as the producer of raiders must be high in Nairn. While here, he, John, must keep his eyes open with future raids on the local herds in mind.

A small door, set within the gate, opened and an older man issued forth. Surprisingly enough, he wore neither claidheammor nor skean and carried no carbine. Behind him came a dozen more of the Nairn clansmen and they, at least, held guns at the ready. The eyes of all were suspicious.

The leader said, "I am Willard, Sachem of the Corcorans and eldest of the sachems of Nairn. What do you will? For, surely, though the Holy books provide for your coming in peace, unarmed, it is a rare thing, indeed."

John said correctly, "May the bards sing your exploits, Willard of the Corcorans. I am John of the Hawks, and this is Don, Sagamore of the Clarks." He didn't introduce the balance of his troop, who sat their horses in quiet, hiding their nervousness at being thus exposed to armed clansmen while being weaponless themselves.

Willard of the Corcorans nodded and returned formally, "May the bards sing your praises, Clansmen of Aberdeen. And what do you will?"

John said, "Ten years ago and more, a craft from Beyond landed on the preserves of Aberdeen, and the occupants were granted the traditional three days of hospitality as travelers. But the strangers were clanless men and knew nothing of our ways. Often, they even violated the ban. They claimed to be explorers from a great confederation of worlds from Beyond which they called the League. They claimed that they wished Caledonia to join this great League, but they were shameless men and we were pleased to see them leave in their great ship of space."

The Nairn sachem was nodding.

John went on. "And now the rumor spreads throughout the land that the men from Beyond have come again, this time in many ships of space. In but a few days, the meeting of the Loch Dail will

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take place and all the Phyla gather in assembly. I, and my troop, have been sent to inquire into the meaning of this new coming, for the rumors are that these clanless ones from Beyond claim to be holy men and thus the ban is against attacking them in honorable raid. So, we have come to confront these from Beyond and hear their tale and then report to the Dail of the Loch confederation."

The other was nodding again. "It is true, John of the Hawks. And there is great confusion in Nairn, even amongst the bedels and Keepers of the Faith. The newcomers teach a new religion, that of the Avatara of Kalkin, and claim it has swept all other faiths before it, throughout all the worlds settled by humankind."

John was scowling down at the older man. "Confusion?" he said. "How can there be confusion? Surely, the Keepers of the Faith have stated that the preaching of this new religion is against the ban."

Willard of the Corcorans said slowly, "Yes. But that was before the coming of the black pox."

"The *black pox*!" Don of the Clarks blurted.

There was a stirring in the ranks of John's clansmen. It was not deemed safe to be within a quarter mile of a town struck by the pox.

Willard was nodding. "A clanless one evidently brought it from afar. He came to the gates of Nairn, steedless, hungry and in rags and applied to the sachem of the Stuarts for position as servant, and, in pity, the sachem took him in. Only later did we find him to be the sole survivor of the far Phylum of Ayr. In justice to him, he knew not that he carried the pox, since he, himself, was seemingly immune to it. Too late was he cut down by the Stuart clansmen. The black pox was upon us."

John's face was drawn.

He turned and snapped to his men, "Ride hard for the hill. I will remain and secure the balance of the information and later shout it to you from a distance, so that you may return to Aberdeen and repeat it to the Dail. But now, get out of here."

Fourteen clansmen wheeled their horses.

Don said, "How about you?"

"I will stay. We must have the information. You go. Take over the troop."

"No. I will remain and share your fate."

But Willard of the Corcorans was holding up a hand. "There is no need to depart. There is no danger."

John stared at him. "No danger in the black pox!"

"No more. The Guru cured all."

John's men had come to a puzzled halt.

Don of the Clarks said, "Who, in the name of the Holy, is the Guru and what do you mean, he

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cured all? There is no cure for the black pox. Not even the bedels can cure the pox."

"In the name of the new religion, the Guru from the *Revelation,* the ship from Beyond, cured the black pox by invoking Lord Krishna." Willard of the Corcorans had defiance in his expression, as though challenging them to refute him. "The proof is here before you."

He added, "Since then, many of Nairn have taken the soma and entered into the Shrine of Kalkin."

"Soma?" John said. "What is soma?"

The Nairn sachem scowled. "I am not sure. I am poorly informed, but tomorrow I myself plan to take it and enter into oneness with Krishna."

For a long moment John of the Hawks stared down at him. Finally, he said, "May the bards sing your exploits, Willard, Sachem of the Corcorans." He whirled his horse and snapped to Don of the Clarks. "Let us go to the ship and confront these so-called holy men from Beyond."

As long years before, when John had approached the exploratory spaceship, the *Golden Hind,* this vessel appeared to grow in size as they approached. When finally it loomed above them, it seemed at least in cubic content that of five or six longhouses. Behind him, he could sense the stirring in the ranks of his troop, most of whom had not seen the *Golden Hind* when it had visited Aberdeen. Made all of shining metal, it was mind-shaking to think that this vessel from Beyond could lift itself and travel to the stars and back.

John of the Hawks came to a halt and stared upward. There was a ramp which led to an open entry port.

He had about decided to dismount and ascend, when a figure appeared and started down toward them. The first men from Beyond John had met had all been in a strange colorless uniform, rather than wearing the kilts of their respective clans, indeed they had confessed to having no clans. But this solitary otherworldling was attired all in black, as a bedel might dress on Holy days devoted to praise.

When the figure reached the ground, he looked up and said, "Welcome to the *Revelation,* John of the Hawks."

John looked at him emptily. "You are unarmed, Mister of the Harmons, as am I. But perhaps you forget that I carry the blood-feud with you."

The other, a man of approximately John's own years, twisted his mouth in sour amusement. He held his hands out to either side. "I am always unarmed, John of the Hawks. You see, I have entered the Shrine of Kalkin as an acolyte."

"You mean you are a bedel?"

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"Not exactly," Harmon said. "You are one of the supposed holy men who spread a new religion which is other than that taught by the Keepers of the Faith?"

The other nodded. "That is correct. I am now skipper of the *Revelation*. All members of the crew also follow in the footsteps of Krishna. None are armed."

Don of the Clarks said, "And so are protected by the ban." He grunted. "I suspect you cozen us, Skipper of the Harmons."

Harmon looked at him in amusement. "They're your customs and taboos, not mine. I, and the others of the *Revelation*, have come with the message of Krishna and to bring you to the Shrine of Kalkin."

John looked at him for a long moment more before saying, "Very well. We have been sent to secure information of this new faith and of your purpose here on Caledonia. Tell us more of . . . of Krishna and your so-called shrine."

Harmon raised his eyebrows and there was a mocking quality in his eyes. "But I am only an acolyte and not fit to spread the word."

Don of the Clarks scowled. "You talk in circles, man from Beyond."

But a new figure had come to the entry port and now slowly began the descent of the ramp. It was an older man, bald of head and with a great calm dignity in his every motion. He wore a robe of orange, an unprecedented dress so far as John and the other clansmen were concerned, and there were sandals upon his feet.

When he had reached their level, Harmon made a respectful obeisance to him, then turned to the Caledonians, and said, "This is Mark, Guru of the Shrine of Kalkin, our leader and teacher."

John nodded courteously. "I am John of the Hawks," he said. "I assume you are a bedel who teaches this new faith which is against the ban."

"There is only one ban, my son: Thou shalt not harm. This Lord Krishna has revealed to us."

Don snorted. "There are many bans and obviously there have always been many bans and will continue to be. Otherwise . . . why, otherwise there soon would be no living clansmen on all Caledonia."

"No more, my son. And when you have taken your soma and have entered into the Shrine of Kalkin, and are one with Lord Krishna, then you, too, will harm no more."

"What is this soma?" John demanded.

The Guru said gently, "Many millennia ago, my son, the Lord Vishnu, in his first avatara as Lord Matsya, gave to man the blessing of soma. But man was then incapable of following the way of Krishna, and soma was lost through the centuries. But with the final avatara of Lord Vishnu, that

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of Kalkin, soma was again found by a great Guru who deciphered the ancient writings of Mohenjo-Daro, in the Indus valley of Mother Earth."

"What does avatara mean?" Don said.

The older man looked at him. "Reincarnation, my son."

"Who is this Krishna, you keep talking about?" John demanded.

The gentle eyes came back to the raid cacique. "The Lord Krishna is the eighth avatara of Vishnu, my son, and our redeemer. It is he who united us all into one in the glory of the Shrine of Kalkin with the holy soma."

John of the Hawks grimaced in impatience. "Do you mean, before you can understand this new faith, you must take this thing you call soma?"

"Yes, my son."

"And you have taken it?"

"Yes, my son."

"I am not your son," John said impatiently. "We are not even kin. Have all the people from Beyond taken your soma?"

"No, my son. Not all." The Guru looked at Harmon and frowned slightly. "Not even many of those who follow the path of Krishna."

Harmon said, "I have yet to feel myself worthy to unite with the Lord Krishna."

John looked at the *Revelation's* skipper. "So you haven't taken it, but recommend that we do."

Harmon said evenly, "One day I shall, when I feel myself worthy."

John grunted and looked back at the older man. "Then, what happens after you take soma?"

"You become one with Krishna, our redeemer, and follow his teaching the rest of your years until the end of mortal life comes and you are gathered into the bosom of Kalkin."

"What teaching?"

"Thou shalt not harm."

Don snorted.

John said, "Look, Guru of the Marks, it is impossible to go through life without harming someone."

"Not just someone, my son. Any living thing."

The Caledonians were staring at him.

"Any living *thing*? How can you eat a steak of beef without harming the steer?" one of the clansmen blurted.

"You cannot, my son. Followers of the path of Lord Krishna eat only of the vegetables of the fields and the fruit of the trees."

John said, "Look, Guru of the Marks, do you claim that if one takes this soma, he will go through the rest of his life unable to harm any other?"

"He would not wish to harm any other, my son. Once he has taken his soma, he walks in the same path as the Lord Krishna."

John stared at the older man

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even as he thought it out. "I don't believe you," he said finally.

"You will, when, at long last, you have taken your soma, my son."

John continued to stare at him in frustration. Finally he wheeled his horse and barked, "I want a volunteer."

Fifteen hands went up.

He ignored them for the moment. "It is of great implication to our whole confederation. It will mean perhaps death, though probably not. It will possibly result in the volunteer being branded a slink and stripped of his clan kilts. You have heard this so-called Guru. I want a man to take soma and report his experience. I would do it myself, but I am the leader of this troop and responsible to the Dail for the expedition's report."

The hands of the clansmen remained up, but there was despair in all faces.

John looked them over. He called finally, "Robert of the Fieldings."

The clansman rode forth, holding his reins in his awkward left hand. Other than his crippled arm and scarred face, he was a beautiful specimen of Caledonian manhood, well over seven feet in stature and carrying sufficient weight to be considered brawny.

John had chosen deliberately. Robert had no immediate family, a raiding party had set fire to his *hut on the heath* where the then herdsman had built outside the Aberdeen walls. His wife and three children had burned, and since then Robert spent his life on raid, never failing to volunteer for each expedition, but thus far having been unable to find honorable death in combat.

John wheeled back to Mark, the Guru. "This man will take your soma."

The older man said, "Each must himself decide, my son."

John looked at Robert of the Fieldings.

The clansman said, "I wish to take this soma." But there were blisters of cold sweat on his broad forehead.

The Guru frowned in hesitation.

Harmon said, "Let the dully take it. Why not? Our task is to spread the message of Krishna. He'll be the first convert in Aberdeen."

"Very well. Follow me, son Robert."

John said, "A moment. How long will this take?"

"He will return to you at this hour, tomorrow, my son."

The orange-clad Guru turned and began to reascend the ramp. Robert hesitated only momentarily before following. Harmon, a faint amusement on his face, brought up the rear. And now John could see two other orange-robed figures at the entry to the *Revelation.* Evidently, this Mark

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was not the sole Guru about the spaceship.

For a moment, John of the Hawks was about to call to Robert of the Fieldings, to recall him to the ranks of his fellow Aberdeen clansmen. But then he shook his head. They could not return to the assembly of the Dail without full information on this precedent-smashing situation.

He turned and said to Don, "We'll make camp here."

Don scowled in the direction of Nairn.

John said, "No. They will not raid us. I suspect that many of them have taken this soma. Perhaps there are not enough true clansmen remaining in the whole Phylum to raid us."

The following day, the small troop drew up again before the ramp of the *Revelation*, waiting. The entry port was still open, but there was no sign of life.

Don growled, "If we had our weapons, we could raid them. Undoubtedly, there would be much booty inside."

"Undoubtedly," John said. "However, it is a difficult position. They are unarmed men, who claim to be teachers of religion and I suspect it would be against the ban to attack them, or even to count coup upon them."

Don snorted his disgust. "Religion! There is only one religion and that is the religion of the Holy. Any Keeper of the Faith can tell you that."

John didn't answer his friend. There were many ramifications to all this and he had by no means thought them out to a conclusion which satisfied him.

The troop stirred. Harmon, the self-proclaimed skipper of the spaceship, had appeared at the top of the ramp. Following him was Robert of the Fieldings.

They descended the ramp and Harmon stood to one side, his expression amused. Robert of the Clan Fielding approached them and stood before John and the others.

It was then that John of the Hawks lost his characteristic dignity. His eyes bugged and he rasped. "Where . . . where is the scar that ran from your ear to chin?"

There was a strangeness in the face of Robert. It would seem the dour clansman had lightened several degrees in complexion. There was a g'ow about his face, a shine in his eyes. He lifted his left arm, and touched the side of his face.

Don blurted, "Your *arm*!"

Robert said, in an unwonted soft voice, "I have been walking with the Lord Krishna and hence have been cured of all ills."

II

This year the meeting of the Dail was being held in Aberdeen.

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The plain before the city was a mass of tents, large and small, banners flying above those which housed the sachems of the various phyla. The markets were in full swing. Feet had trampled the heather to the point where it was now dust; it billowed up as herds of cattle and horses were brought in for the bartering. There was the skirl of music and a continual shouting, bickering, arguing, the last in particular from the men's tents where *uisgebeatha* was for offer.

It was in such a tent that John of the Hawks found the clansman for whom he sought.

John stood beside him at the improvised bar and ordered a small dorris of the potent spirits, at first pretending not to notice who was at his left. He sipped his drink then said, "Ah. May the bards sing your exploits, Will, Sachem of the Thompsons."

The other turned.

John said, "Perhaps you do not know me."

Will of the Thompsons said jovially, "I recognized you immediately, John of the Hawks. May the bards sing your exploits." He laughed his good humor. "Indeed, I assume they have. While you were still but a lad, you counted coup upon me, who was then Raid Cacique of the Thompsons."

John said politely, "The Holy granted me great fortune that day, Will of the Thompsons."

"He did at that," the other said. He had obviously already downed more than one of the dorrises which were being doled out by half a dozen barkeeps to the clamoring clansmen. At this rate, John thought, the hospitality of the Aberdeen hosts of the Dail this year would be strained to the point of not having a drop of *uisgebeatha* left in town before the assembly was over.

The Thompson sachem said, "Come, have a dorris with me, John of the Hawks. Perhaps when next we meet, it will be at claidheammor point."

John took the drink proffered. "Happily," he said, "that will be unlikely since you have been raised up to sachem and no longer lead the Clan Thompson as raid cacique."

The other sighed his regret and tossed his drink back over his palate. "I suppose you are right," he said. "A sachem's duties are such that he has little time for raids."

John cleared his throat and said, "Ah, there is something that I would discuss with you, Will of the Thompsons."

"Of course." The sachem signaled the barkeep for a refill.

John said, "For many years, at each meeting of the Dail, I have sought the hand of Alice of the Thompsons . . ."

The other was staring at him in surprise.

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John hurried on. "At each Dail I have offered a generous bride-right, so that I might honorably steal my bride. However . . ."

Will said indignantly, "You approach me as an individual to discuss a Thompson lass? This is not meet, John of the Hawks. It is not forbidden by the ban, but it is not meet."

John said hurriedly, "No discourtesy was intended, Will, Sachem of the Thompsons. I . . . I extend my apologies. I . . . I will be back."

He turned quickly and left the tent. He stood for a moment at the entry flap, his eyes darting around the area. He shook his head, not finding the one he sought.

But, finally, he made out someone he knew and strode quickly over. "Dewey!" he said. "Have you seen the sachem?"

Dewey of the Hawks was evidently mildly befuddled. He blinked owlishly at his fellow clansman. "Robert? Robert was here but a moment past. He went . . . he went over that way."

John hurried off in the direction indicated and, sure enough, found his clan sachem in discussion with two sagamores of the Clan Davidson. He stood impatiently to one side, until noticed.

Robert, Sachem of the Hawks, looked over at him and said, "Yes, John?"

John nodded to the two sagamores, neither of whom were known to him, and murmured quickly, "May the bards sing your exploits." And then to his chief, "It is a matter of importance, Robert."

The sagamores excused themselves and wandered off to watch a performance of trick riding.

Robert was frowning slightly, but there was also an almost apologetic something in his eyes. "I assume it is the usual matter of importance that you bring to my attention at each meeting of the Dail, John."

John said hurriedly, "Robert, there is a new sachem of the Thompsons, this year. Will, the former raid cacique has been raised up to the office. Perhaps . . ."

Robert sighed. "Very well, John. I shall approach him and represent you. However . . ."

John said quickly, "He is over here in the tent." He began to lead the way, his hand on the other's arm, urgently. "He is in good mood. Perhaps . . . perhaps this time. Robert, offer him twenty horses, twenty cattle."

Robert looked at him in irritation. "You do not have twenty horses, John."

John said, "Don of the Clarks is indebted to me. He will loan me the balance."

Robert was scowling unhappily. "I realize that you have twice saved the Clark clansman's life in raid, but he is a fellow Phyletic. One does not take reward for such

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action when the other is a Phyletic. It is not against the ban but it is not seemly."

John sighed impatience and despair. "He is my blood companion. We are not kin, but we have taken the oath of comradeship. All that is mine is his, and vice versa."

Robert grunted sourly. "The proof is there before us that he has the worst of the bargain, since you evidently won't have anything in short order. Twenty horses! Two would be generous." He added gruffly, "Don't the Thompsons steal enough of our horses and cattle in their raids, that you have to offer them forty head, in all, in return for a lass? What is wrong with an Aberdeen lass? Why not have me approach the sachem of the Clarks, or Fieldings? For two horses you could steal any single girl in Aberdeen, you who are raid cacique of the Hawks before you have thirty years."

John shut his eyes in despair, but said nothing, and still hurried his chief along.

They entered the tent and John whispered, "There, up against the bar." He dropped behind, letting the sachem precede him.

Robert, Sachem of the Hawks, approached Will, Sachem of the Thompsons and said, "May the bards sing your exploits, Will of the Thompsons."

The other nodded. "And yours, Sachem of the Hawks.

"I would have a word with you."

John hurried over to the other side of the extensive tent and jerked his head at four Hawk clansmen seated at a table. They looked up at him in half drunken irritation.

He said urgently, "The two sachems wish to confer. Robert speaks in my behalf."

The story was one with which his fellow clansmen were familiar. Two of them looked at him in commiseration as they came to their feet. The other two, farther gone in their cups, merely stumbled away, heading for the bar and alcoholic oblivion.

The two sachems took chairs and John stood anxiously to one side, not too near, though still able to hear. They ignored him. It was not against the ban for him to stand there as they talked, but it was mildly unseemly.

Robert said formally, "I say the praises of my clansman, John of the Hawks."

But Will of the Thompsons raised a hand and shook his head. "I know your plea, but we need go no farther. It is an impossible plea."

Robert said doggedly, "He is a young man, in his prime. Already, the bards have sung his exploits a dozen times and over."

"I know," Will said wryly. "One time my name was involved. I was shamed."

Robert said quickly, "But all

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was resolved between our clans at the next meeting of the Dail."

"I hold no bitterness. It would be against the ban for me to do so. However, the Clan Thompson would never consent to the stealing of Alice by a Hawk."

"He is already raid cacique of his clan, though still a comparative youth. He is highly regarded by the Keepers of the Faith and the bedels, since six times he has counted coup, rather than shed the blood. He offers twenty horses, twenty head of cattle."

"Twenty!" Will blurted, taken aback.

The other nodded in disgust. "Given the opportunity, he would undoubtedly strip the clan of its little wealth, for this single lass."

Will of the Thompsons looked over at the obviously miserable John, but still shook his head. "I, myself, would be in favor, honorable Sachem of the Hawks. However, though I am sachem and my voice is respected in our clan musters, as you know, my vote is but one and the great majority of the Thompsons, who have suffered much, down through the years, have refused to become kin to the Hawks through marriage. True kin, we would not be, of course, but still kin through marriage. The Thompsons refuse to consider that one of theirs would produce Hawk clansmen who would one day raid their herds and kill their clansmen."

Robert said, his voice slightly huffy, "At each Dail, the deeds of violence of the year are wiped out by honorable consultation and balancing of accounts between the sachems. Why else should there be such an office as sachem? Since the misty years, indeed since the coming of the Holy *Inverness Ark*, the Keepers of the Faith have thus secured us. If such were not the ban, the vendettas would soon accumulate to such a degree that all Caledonia would be depopulated. How is it, then, that the Clan Thompson refuses an honorable offer to have one of its unwed lasses stolen by a clansman of the Hawks?"

There was an apologetic aspect in the other's face as he looked over at the anxious young clansman in question, but he continued to shake his head. "It is not against the ban," he said stubbornly. "Although all accounts are now balanced and we carry no blood feud with you, it is still up to us to decide, and the vote has been against it."

Robert snapped, "And the lass? I understand she is still unwed, though very comely. Why is it that the lass has not shown her preference for some clansman of your Phylum of Caithness? Could it be that she *wishes* to be stolen by John?"

Will looked at him coldly. "Do you think us so shameless in Caithness that we allow a lass to make such decisions?"

"It is not a matter of being

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shameless. As all men know, though the full membership of a clan must needs decide by vote to whom a lass will become bride, still the lass is invariably consulted and her wishes almost always abided by."

Will took a deep breath. "I am sorry for John of the Hawks, and bear him no ill will, but the Clan Thompson refuses to allow him to steal Alice for his bride."

Robert glowered at him in frustration.

Finally he said, "As sachem, undoubtedly you are also a Keeper of the Faith. I ask that you look into the Holy books. All that is there, all about the holy chromosomes, the sacred nature of which has been lost to us since the misty years, urges that the clans mix their blood. So it is that Hawk cannot marry Hawk, nor Thompson marry Thompson. Although it is not against the ban to marry within the Phylum, so long as you steal your bride from another clan, still the Holy books urge that brides be stolen from other towns, so that the blood be even more widely mixed. Such is the teaching of the chromosomes, although we know not what chromosomes may be."

Will sighed, shook his head and came to his feet. "May the bards sing your exploits, Robert of the Hawks, however, it is impossible. There is not a family in the Clan Thompson but has lost close kin to the raiding Hawks. Too much violence has transpired between us. And now, with all respect to the Sachem of the Hawks"—he looked over at John—"and to its Raid Cacique, I will repair to the bar and continue to enjoy the hospitality of Aberdeen."

He turned his back and walked away.

Robert got up, approached John and put a hand on his shoulder. "I tried."

John nodded. He turned away and left the tent.

He knew where to find her. The women of the Phylum of Caithness were famed for their hand-woven textiles and, at each meeting of the Dail, erected several booths for bartering.

Alice of the Thompsons must have seen him approaching, even before he spotted her, since when he came up her face was already slightly flushed, as became a good lass being looked upon by the man who loved her.

She kept her eyes lowered as he came up and said, "May I interest you in this kilt material, Clansman of the Hawks?"

John said, "Ten years, Alice."

She put down the material and looked up, her own misery a reflection of his. "You appear well, John of the Hawks. The Holy has seen fit to preserve you through the year since the last Dail, even though now you are a Raid Cacique and subject to much danger."

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"Yes," he said. "And you look . . . well, Alice of the Thompsons." He held his silence for a long time, merely looking at her. Finally, "I have had Robert, sachem of our clan, speak in my behalf to Will."

She said nothing, lowered her eyes again to the bolts of material on the improvised counter before them. One of her small hands went out and picked meaninglessly at a thread.

He said, "It was as always before."

"I know."

Then suddenly, in a rush, "John, why do you not chose a lass of Aberdeen? It is hopeless. My people pride themselves on their sense of revengement. Even the ban does not prevent them from carrying spite beyond the assembly of the Dail."

He said, "And why do you not chose from among the young clansmen of Caithness who clamor for the right to steal you as a bride?"

There was no answer, but her flush had reappeared.

A Thompson clansman approached, his hand negligently on the hilt of his claidheammor, which was uncalled for at this, a meeting of the Dail of the Loch Confederation.

He said, "Do you then speak to an unwed lass of the Thompsons, Clansman of the Hawks?"

John looked at him emptily. "Only in passing, Clansman," he said. "No disrespect of the Clan Thompson is intended." He turned and walked away, Alice looking after his tall, straight figure in misery.

As he went, John heard the voice of one of the older Thompson women tending the booths. She was exclaiming, "But it is ridiculous. Someone has stolen from the bolt of Thompson kilt material. How could it be? The material is useless to any save a Thompson clansman, and certainly a Thompson could never steal from a fellow clansman. It is against the ban."

Another voice said, "You must have mislaid it. As you say, it is useless except to we Thompsons. Besides, stealing at a Dail is unheard of."

He headed for one of the men's tents. John of the Hawks was not much of a drinking man, as Caledonian drinking men went, but he could think of nothing else for the immediate moment.

However, the conch sounded then, and a crier went by calling, "The assembly of the Dail convenes! The Dail convenes!"

John reversed his direction and headed for the temporary amphitheater-like stands where the sachems and caciques were to be seated. His report on the spaceship from Beyond was sure to be early on the schedule and he would have to be there with Robert of the Fieldings.

On his way he saw Don of the

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Clarks and said to him from the side of his mouth, "You got it, eh?"

Don grinned at him.

John said, "Nobody spotted you? Nobody at all?"

Don shook his head. "I took no chances. What a cry would have gone up, under the circumstances. The Keepers of the Faith would have howled for my kilts."

John grunted. He said, "Now the problem is to get someone who will sew them for us. Someone capable of keeping her mouth shut."

Don said, in mild indignation, "Sally, of course! My wife is a lass who is game for ought. And besides, she knows your woe and is as indebted to you as I am myself. It would be unseemly for her not to offer her services."

"She will not feel shamed? I would not shame the lass."

"Certainly not! It is a lark. Besides, no one will ever know."

"All right," John said. "And the sooner the better. We would not want some sharp-witted Thompson to think out the theft to it's obvious conclusion."

Aberdeen did not possess a hall large enough to seat the assembled sachems and caciques of the Loch Confederation. Few towns in the confederation did. As an alternative, they had built a wooden stand on the heath outside the city walls. A halfmoon in shape, it reared six tiers of seats in height. Each sachem sat with his caciques, whose number differed in each clan. For the office of sachem was hereditary, in that the man elected to the position held the office for life, unless removed by majority vote, and, upon his death, a new sachem was chosen. A cacique, however, was raised up to his position through deeds of merit, or special abilities, and his chieftainship died with him.

As Raid Cacique of the Hawks, John sat with his sachem, Robert, the agricultural cacique, the two caciques of the herds, and the hunting cacique. Other clans numbered more caciques, sometimes having as many as three raid caciques alone. It made no difference in the voting. Each clan had one vote, no matter the size or the number of its representatives to the Dail.

When all were seated, phylum by phylum, Bertram of the Fowlers, eldest of all the bedels, opened the meeting by saying the praise to the Holy. When he was through, he left the amphitheater and retreated to the ranks of the bedels and Keepers of the Faith, who stood nearest of all to the assembly of chiefs, even before the sagamores. Beyond the sagamores were the full clansmen, and behind them the women. Children and clanless ones were not allowed to participate in the Dail.

Thomas of the Polks, eldest of all sachems in the Loch Confederation, came to his feet and walked in dignity to the amphitheater's cen-

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ter. He looked up at his fellow chiefs.

"If there is no word of protest, the first matter to come before the Dail will be that of the strangers from Beyond. Since their advent was first here in Aberdeen, a decade and more past, I shall turn the rostrum over to Robert of the Hawks, senior sachem of the Aberdeen Phylum, if there is no word or protest."

He stood a moment in silence. No one spoke. Thomas of the Polks returned to his place on the lowest level of seats.

Robert of the Hawks arose and took the speaker's stand.

He said, "If there is no word of protest, I shall call upon John, Raid Cacique of the Hawks, to address you, since he of all the clansmen of Aberdeen, has dealt most with the men from Beyond."

He held silence for a moment, but no one spoke. Robert of the Hawks returned to his place and John stepped out.

It was the first time he had ever spoken at the assembly of the Dail and John of the Hawks was a man of action, not of words. However, he looked up at them, all the most prominent men of the confederation, and said loudly, "I am of the opinion that these men from Beyond must be destroyed."

A sachem from Dumbarton called, "We do not ask your opinions, John of the Hawks—at least not at this stage. We want facts."

John flushed and began to retort, but Thomas of the Polks said evenly, "He is correct. Tell us all that has transpired, and then we shall each have our word, they who would speak, and we shall each of us vote upon the course of action. If we reach agreement, then it shall be put to the vote of the total assembly, to ratify or not. Such is the way of the Dail, as each man knows. But now, John of the Hawks, tell us all of the men from Beyond."

And so he did, in detail, omitting not even such shameful things as the occasions upon which he had eavesdropped upon the strangers. Omitting not even the fact that he had been stripped of his arms and made a woman of by the men from Beyond, who had then left so that he had no way of clearing his name and the name of his clan by taking his revengement.

He told all, of his experiences with the men of the exploratory ship *Golden Hind* and then took up his more recent expedition to the *Revelation.* There were stirrings of disbelief when he described the strange behavior of the clansmen of Nairn, particularly those who had consented to take the soma.

He was interrupted here, which was unseemly, but not difficult to comprehend in view of the startling nature of his disclosures.

A sachem of the Edin Phylum called, "But you claim that this Guru of the strangers, this self-

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named holy man, cured all of the black pox. Surely there is no illness on all Caledonia more fearsome than the pox. If such be their powers, why then did you begin your declamation with a demand that they be raided and destroyed? Surely the Holy smiles upon them."

John answered by turning and shouting to the Hawk contingent of clansmen. "Robert of the Fieldings!"

Robert came forth and walked toward them. He wore the kilt of a field worker, rather than that of the Fieldings, which was passing strange at an assembly of the Dail. At a Dail, a clansman was inclined to clothe himself in his proud best. Nor did Robert wear claidheammor or even skean.

He was at his ease as he joined John of the Hawks, even though he was a simple clansman before the ranking chiefs of his confederation, and before the teeming thousands of adult members, men and women, in the assembly.

He smiled at John and said, his voice mild but still carrying, "I am no longer Robert of the Fieldings, but simply Robert, now that I have joined with the Lord Krishna."

John, who had been through it all before, said, "You have renounced your clan and become a clanless one?"

"There are no clans before the Shrine of Kalkin. All humankind is one great clan. All are my brothers."

Thomas of the Polks, even his great dignity shaken by the unbelievable, came to his feet and began to speak.

However, he was interrupted by the sounding of the conch and a crier shouting, "Strangers come! It is the men from Beyond!"

III

The newcomers could not have done it better had it been rehearsed. The craft, which later they named a *skimmer,* settled to the ground gently, between the amphitheater stand and the rows of bedels and sagamores.

A sigh went through the great assembly, for all there knew that such a craft could not normally float through the air. That a great power, unknown on all Caledonia, was involved. That these from Beyond controlled powers unbeknown to the holiest bedel or Keeper of the Faith.

Many eyes turned to the ranks of bedels, one for each clan represented at the Dail. But the faces of the bedels were blank, indeed some went beyond that. Their expressions were of despair, for what can a speaker of a faith do when confronted by an obviously greater faith?

The craft came to a halt, an entry port appeared where there had seemed but a wall of metal. An orange-robed figure issued forth, then turned to assist another.

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John of the Hawks stood side by side with Robert, once the most fearsome raider of the Clan Fielding. He had not expected the others to arrive quite so soon, but he had known the confrontation was inevitable.

There were four of them in all. The one who had been named as Mark, Guru of the Shrine of Krishna, two younger men, similarly robed and shod, but obviously of lesser rank in the hierarchy of this new faith, and, last from the craft which flew through the air, the skipper of the spaceship, Harmon.

Bertram of the Fowlers, senior bedel, came now and stood beside John. Perhaps his faith was stronger than that of the rank and file of his colleagues, but in his face, too, was something John of the Hawks was dismayed to see.

The Guru, as before, carried an aura of calm dignity which dominated all. He approached now and nodded gently to John of the Hawks.

"My son," he said, "have you considered as yet and decided to take the soma and enter into the Shrine of Kalkin?"

John look[illegible]n levelly. "Nor will I e[illegible] Marks." He gestu[illegible] sachems and caciques. [illegible]ssembled now in the Dail of the Loch Confederation, and are even at present discussing how to meet the coming of you from Beyond. I point out that receiving you in peace means eventual ending of all our institutions, even that of our faith."

The older man spoke gently, and he spoke to all, rather than just John. "I come from afar in the sky to bring, not to take. All . . . all of you, will find your eternal peace through following the Lord Krishna to the Shrine of Kalkin."

Bertram of the Fowlers had regained some of his poise. Now he said, and his own dignity was considerable, "The Holy book says:

And that inverted Bowl they call the Sky,
Whereunder crawling coop'd we live and die,
Lift not your hands to It for help— for It
As impotently moves as you or I."

The Guru looked at him quizzically. "What Holy book is that, my brother?"

The bedel was surprised. "But there are only four Holy books, as surely all know. Though still there are [illegible]e the traditions that some who dis[illegible] before the great fire, on the coming of the Holy *Inverness Ark*, there were many, many Holy books which were lost, either in the fire or during the misty years. And some would make ceremony of mourning [illegible]ne loss of the Holy books no[illegible] by humankind, wisdom in:

The Moving Fi[illegible]
having w[illegible]
Moves or[illegible]

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Shall lure it back to cancel half a line,
Nor all your tears wash out a word of it."

The Guru was not beyond the ability to find amusement. He smiled now and said, "My brother, there have been many Holy books and all have their element of good, perhaps. However, now, with final avatara of Lord Vishnu, all faiths must unite into one, and all Holy books are of little more than historic interest. Perhaps some day we shall have occasion to discuss some of them, to fill an idle hour, but, as I say, they are of little more than passing interest, my brother."

"I am not your brother, we are not even kin," Bertran of the Fowlers said in indignation. "And one must not speak thus about the Holy books, it is against the ban! And though my eyes, in retreat as my years advance, no longer allow me to contemplate them, so much have I read in the past that they are all but memorized."

The Guru nodded and looked more closely at the other. "Cataracts," he murmured. Then, "My brother, as soon as we are established, you must be first to allow Krishna to intervene in your Lord Kris[illegible] read again—to-[illegible]est."

[illegible]d stared at him, working. "You

[illegible] simply. He [illegible]e can be settled in quarters, I shall invoke the Lord Krishna in your behalf immediately."

Thomas of the Polks was coming forward. He said, "We have not as yet voted upon how to receive you, strangers from Beyond. However, you are travelers and hence welcome to a minimum of three days of hospitality—even though the last time your clansmen visited Aberdeen our hospitality was abused."

John of the Hawks said to Harmon, who had been standing to one side, his face characteristically sardonic, "When you were here before, Mister of the Harmons, my quarters, in the longhouse of the Hawks, were relinquished to you. Though you are now my bloodfeud foe, it is as the sachem has said, you are travelers and hence eligible for three days of hospitality. If you wish, my quarters are again available."

Harmon made an amused half bow. He turned to the Guru. "As good a place as any. I'll have the men set up your portable clinic, ah, that is, your *shrine.*"

The Guru frowned at him, albeit gently. "A[illegible]oda, my son, does not deserve [illegible]rroundings. It is w[illegible]f the follower of L[illegible]s."

"Of course," Harmon said dryly. He returned to the skimmer.

John turned and left the amphitheater, heading back for the rows

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of sagamores, the other sub-chiefs.

Don was among them. John jerked his head in gesture, and Don, his eyebrows high in surprise, followed.

When they were out of earshot of any, Don demanded, "Why in the name of the Holy, did you offer that slink your quarters?"

"You'll see," John growled. "Long years ago, through accident, I heard much of the plans of these men from Beyond. This time, it will be no accident. We must hurry, because almost surely, when they first enter the quarters, thinking themselves alone, they will discuss their purpose here."

Don, even as he strode along beside his blood comrade, was both mystified and surprised. He said, hesitantly, "Do you mean you plan to spy upon the travelers who have been granted the hospitality of Aberdeen?"

John snorted. "True enough, I would be stripped of my kilts, were the Keepers of the Faith to know. I did it before, long years ago, but then I was but a lad and not a full clansman and besides, as I say, it was an accident. However, this situation is more serious than most seem to know, and I sacrifice my honor for the greater need. Not only is Aberdeen at stake, but the whole Loch Confederation. Indeed, all Caledonia."

Don maintained an unhappy silence.

They reached the Hawk longhouse, entered, and made their way by ladder to the flat roof. As they proceeded, John explained. "I always believed that those from Beyond would return. The explorer ship came first, and they were insufficient in number to achieve what they wished. I prepared for their return. If and when chance brought them again to Aberdeen and the longhouse of the Hawks."

They had reached the point immediately above his chambers. John knelt, and his hands moved deftly.

"Here," he said, stretching out on his stomach.

Don of the Clarks, still frowning, joined him. There were small holes leading down through the roof so that the living room of the small apartment below was observable.

They had a wait of perhaps fifteen minutes, then two of the orange-clad men from Beyond entered, carrying various equipment. Mark, the Guru, entered next, followed by Harmon.

Harmon was saying in amusement, "I see you follow the old adage: Don't talk with angels, talk with God."

The Guru said, "I don't believe I understand, my son."

Harmon chuckled. "Picking out their senior religious figure for your first miracle. Curing that old boy's eyesight will have them flocking in. It will start with the really bad cases, paralytics and so forth, but

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before the week is out you'll have half the town taking your soma."

The Guru said, "Down through all history, my son, the spreaders of faith have performed miracles in order to win their followers. Joshua of Nazareth, Mohammed, even Vishnu in his ninth avatara as the Buddha."

Harmon said, "But the followers of the Lord Krishna, such as yourself, Guru Mark, have a great advantage in miracles. Modern medicine certainly puts you in a position to perform miracles far and beyond those of any of your predecessors."

John could see the Guru's face and it was expressing surprise. "But, my son, it all leads to their taking their soma and becoming one with Lord Krishna."

"And the ends justify the means, eh?" Harmon laughed again. "I detect a slight Machiavellian quality."

Don whispered to his companion. "What does that mean?"

"I don't know," John said. "Listen."

Mark was saying, trouble in his voice. "My son, though you wear the robe of the acolyte, I sometimes wonder at your faith. For instance, when we first embarked upon this missionary expedition to a new world which had as yet not heard the message of the Lord Krishna, I did not know you had other interests than bringing the Shrine of Kalkin to Caledonia."

Harmon said, "Guru, somebody said once, I forget who, to give unto Caesar that which is Caesar's and unto God that which is God's. There are many facets to human existence—one is religion."

"By far the most important!"

"Of course," Harmon didn't bother to keep cynical amusement from his voice. "However, there are other things. The syndicate which I represent is based on one of the new planets where free enterprise —shall we call it—is still in full force. We are interested in bringing, ah, civilization to Caledonia, so that its minerals can be exploited. So long as this fantastic barbarism continues, we haven't got a chance. Very good. You have no complaints. It was through us that you were able to mount your missionary expedition. It is through us that you are able to spread your message here. Lord knows—that is, Lord Krishna, of course—you don't reach many ears elsewhere."

"There is deep cynicism throughout the League, my son. It is a great sadness that so few will take the soma and follow in the path of Lord Krishna."

"Well, at least you're having your big chance on Caledonia."

One of the other orange-robed ones spoke then, his words indistinguishable, and both Harmon and the Guru moved out of range of the peepholes being utilized by John of the Hawks and Don of the Clarks.

The two clansmen looked at each other.

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Don said, mystified, "But what *is* this soma?"

John shook his head. "Whatever it is, I will go down to black death, before taking it. These are shameless, clanless, men of evil."

Don, scowling, said slowly, "No, not the old one. He is a holy man. Whether this new religion of his is a true religion, I will not say, but he is a holy man."

John of the Hawks snorted. "He serves evil," he growled.

IV

John and Dewey of the Hawks and Don of the Clarks rode hard. Each man was mounted on one war steed and led two more. Periodically, they changed horses.

They rode in silence, but Don broke it at last.

He said, "It is no time to be leaving Aberdeen, with the strangers there. Bertram, bedel of the Fowlers, has announced that if this so-called Guru can cure his blindness, he will take the soma."

John said in irritation. "You know it is the only time. We have discussed and discussed, and there is no other time in which we could possibly force the city. Four years and more in planning this has taken. Another year and it might not work."

Dewey of the Hawks growled, "This year it may not work. The more I think about it, the more I believe that we all play the fool."

John didn't answer Dewey.

"Let's change horses," Don said. "Mine becomes jaded. We must preserve them. They must be fresh on the return, since we will have half the Clan Thompson on our trail."

"We shall have all the Clan Thompson on our trail," Dewey amended, sourly.

Eventually, they reached their destination, a clump of trees overlooking the Caledonian town below. Even though the distance was still considerable, they fell into whispers as they dismounted.

John said, "Where is that confounded chart?"

Dewey brought a large piece of parchment from a saddlebag. "By the Holy, it had better be correct."

John spread it out on the ground and hunkered down on his heels. "It is correct," he growled. "It has taken four years to compile, from every source of information we could find." He traced with a finger. "This is the longhouse of the Thompsons. These, the quarters of unwed lasses who do not live with their families. Here she must be, for she has no family, all having been killed in raid."

Don of the Clarks said unhappily, "If we're spotted by warders . . ."

John was impatient. "For all practical purposes there are no warders. All were at Aberdeen and the Dail." He looked up at the sky. "Soon it will be dark enough. Lis-

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ten!" He cocked an ear. "They are beginning to return. Hurry. The kilts."

He and Don began to strip, as Dewey brought forth clothing from another saddlebag.

Dewey said, "Sally did a good job with the Thompson material. Aiii! She must have been embarrassed. And imagine climbing into the kilts of another clan. Have you two no shame?"

Don laughed. "None at all. Give me that."

They donned the disguises and the Clark clansman began to buckle his scabbard back around his waist. But John shook his head and hung his own sword and dagger over the pommel of his saddle.

"Are you daft?" Don blurted. "You mean to go down into Caithness unarmed!"

John of the Hawks brought his coup stick from its saddle sheath and tucked it in his belt. He said, "I cannot shed the blood of my bride's kin on the night I steal her. Especially since I steal her without honorable permission."

Don rolled his eyes upward in supplication. "But *I* can! For many a year I have raided, and been raided by, the Thompsons. They know me well, and any of their clansmen that see me in Caithness would . . ."

"No," John said. "Besides, we will look less suspicious if we appear unarmed."

Don silently and unhappily hung his own scabbard over his animal's pommel. He said to Dewey, "When we come back, we'll come back on the fly. Have all ready." He took up a coil of rope from behind his saddle.

"I know, I know," Dewey of the Hawks said. "*If* you come back. I still say we're all three daft."

John had started down the hill. Don followed him, after shooting one last longing glance at his sword and dagger.

They were already out of earshot when Dewey muttered, "There'll be vendetta after *this* night. And a full year to go before a meeting of the Dail to reconcile it."

From the far side of town, John and Don could hear the returning clansmen entering the main gate, and they hurried. When they reached the wall, relieved that there had been no shout of a warder spotting them, John brought forth the parchment chart.

"Here. This is it," he whispered, staring upward. This side of the longhouse was blank, being part of the wall defenses of the town.

Don had been carrying his coil of rope, a grapple tied to one end. Now he swung it, tossed the grapple up and onto the roof. The first time it failed to catch and made what seemed a considerable noise when it scratched across the roof and then fell with a clatter back to their feet. John groaned.

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Don recoiled the rope, tossed again. It caught. He grinned success at his blood comrade, and without a word started up the rope, hand over hand, his feet walking up the wall. When he was at the top, he looked about quickly, then turned and gestured for John. John followed him up the line.

On the roof, they checked their map again.

"This way," John whispered. "Over there should be the entry nearest to the quarters of the unwed lasses."

"I know the way by heart," Don muttered.

They approached the roof entry and were relieved to find it open and a ladder in place. The nights were hot this time of year and the occupants of the longhouse took full advantage of any breath of air that could be induced to enter their community home.

They descended quietly, reached the hall below and took a brief pause to get their bearings. The building was all but identical to their own longhouses, back in Aberdeen.

"This way," John whispered.

They found the area they sought. John of the Hawks took a breath and reached for the latch.

A voice said, "Where in the name of the Holy are you two going?"

Don whirled. A Thompson clansman had stepped into the corridor from a room behind them. Even as the newcomer's eyes began to widen, Don came in fast. His fist lashed out into the other's belly. The Thompson doubled forward, his mouth trying to open in shout.

John stepped in close and slugged him mercilessly on the side of the head. The man collapsed. Don caught him, his eyes darting up and down the corridor.

"What'll we do with him?"

"Back into the room he just came from," John snapped. "And say praises to the Holy that there's no one else in there." He took a quick step to the door through which the enemy clansman had stepped and threw it open. The room was empty. A small room, evidently some sort of storage area.

Don dragged the Thompson clansman into the room and let him slump to the floor. He took his coup stick from his belt and looked down at the fallen clansman.

He scowled and said, "Can you count coup on a man who is unconscious?"

John thought about it. "I don't know. I have never heard of such a matter. However, he wasn't unconscious when he first confronted us. And he is armed."

"It will have to be left to the Keepers of the Faith," Don said. He brought his coup stick from his belt and tapped the Thompson, saying, "I count coup."

John shrugged and brought forth his own coup stick. "I count second coup."

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They stuck their coup sticks back in their belts and left the room again, after checking the unconscious one. He looked as though he would be out for quite a time.

They returned to the quarters of the unmarried females of the Clan Thompson and again John took the latch in hand. They pushed in and ran immediately into the presence of a girl who most certainly couldn't have been more than sixteen years of age.

Her eyes widened and she opened her mouth to scream. Don grabbed her, as gently as possible, stuck a hand over her mouth. John closed the door behind them.

"What'll I do with her?" Don demanded. "Aiii! She bit me!"

"Into one of the bedrooms," John snapped. "We'll tear up some bedclothes and bind her. Quick. They'll all be returning. There could be more, any minute."

They dragged the struggling Thompson lass into a nearby bedroom, gagged and bound her with torn bedsheets, then returned to the anteroom.

Don said unhappily, "For all we know, your lass will be the last to come. Perhaps she won't come at all. Possibly she works in the community kitchen. Who knows? Perhaps she has duties elsewhere."

"She'll come," John said.

However, two more innocents turned up before Alice of the Thompsons. And each was treated in similar wise as the first.

Don muttered, "We can't tie up the whole Clan Thompson. Besides, we've got to get out of here, before the corridors are swarming with clansmen. I wish I'd never let you talk me out of my claidheammor."

But it was then she entered.

Like the others, her eyes widened in first reaction to the presence of men—albeit in the correct kilts of the Thompsons—in the quarters of the unwed of the clan. But then the second realization came, that these were strangers and not kin. And then, recognition.

"John!" she gasped. And then, as a good lass must, her hand darted for the short skean at her side, and she drew deep breath to scream for her clansmen.

John grabbed her, growling in despair, "Alice, Alice! I've come for you."

Don caught up some of the torn bed clothing. "All very good, but the lass is no slink, and the proof is there before us. Slip this into her mouth."

"I can't gag my bride," John said in indignation.

"Oh, you can't? Well, I can!" Don snarled. "She'll have the whole building down on us!" He deftly gagged the girl. "You take her," he said. "I've been bitten enough this night. Not to speak of being kicked until I'm black and blue."

John took her up and slung her over his shoulder, murmuring apologetically and quite senselessly. Don opened the door, quietly, dart-

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ed looks up and down the corridor.

"Let's go!" he said. "Fast!"

As quickly as carrying a kicking girl would allow, they started down the corridor in the direction of the ladder. They rounded a corner, ran into the arms of a clansman in his middle years. Don straightarmed him. Kicked him in the side of the head, even as the man fell. John hurried on with his burden, but Don stopped long enough to grab out his coup stick and strike the man.

"I count coup," he hissed, before following after his companion.

They reached the ladder by which they had entered the longhouse and John started up it, one hand holding the girl to his shoulder, the other on the ladder rungs. Alice had stopped kicking—at least temporarily—perhaps in fear of causing a fall, or perhaps in subconscious wish that the escapade succeed.

There came a shout of rage from down the corridor.

Don groaned. "Quickly," he yelled. The fat was now in the fire.

They scrambled up the ladder and John headed for where they had left the grapple and line.

When Don reached the roof he turned, grabbed his coup stick, and slashed with in across the face of the Thompson clansman immediately behind. The other, encumbered with his drawn claidheammor, and wishing to evade the ultimate insult, fell backward, taking three or four of his fellows along with him to the floor beneath.

Don half yelled, half laughed, down at them, even as he hauled up the ladder. "I count coup!" He got out of the way just a split second before a carbine barked from below. He turned and scurried after John and his burden.

Not bothering to utilize the rope, Don grabbed the edge of the roof and swung over. He hesitated a moment, then dropped. Hit on his feet, fell backward with a grunt of pain, jumped to his feet again and stared upward into the dark.

"Quickly!" he yelped. "They'll be on us in moments."

He could see a shape being lowered down, and when she was near enough, grabbed her about the legs. John had tied the rope beneath her armpits.

She began kicking again as soon as he had hold of her, and all his instinct was to clip her one, however, he didn't want to answer to John, later on, in regard to that.

"Hush!" he snarled. "Are you daft? Do you think this is child's play? If we are caught this night, John and I will hang in Caithness square before dawn."

John dropped from above. A carbine barked from somewhere.

They started hurrying up the hill, the girl on her feet now. John had whipped the gag from her mouth. It meant nothing at this stage. The pursuit was on, all bets were down.

Don hissed at her. "Run, lass.

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Those carbines cannot distinguish you from us."

And run she did, John keeping immediately behind her, attempting to shield her body from the slugs that tore the air. She had hiked her skirts up and now her white legs flashed in the night. Happily for their escape, it was a superlatively dark night by now.

They could hear horses behind them, and John groaned. "Faster, lass," he called to her.

Don had gone on ahead as rapidly as he could. They heard him shout something to Dewey and the rattle of his harness as he strapped sword and skean about his waist and dragged his carbine from its saddle sheath. He came charging back again.

"Onto the horses," he yelled. He fired back the way they had come, threw the carbine's breech, jammed another shell into the gun, fired again.

John was boosting Alice of the Thompsons onto the back of one of the horses. Dewey, in the saddle, was firing and reloading as rapidly as he could throw carbine breech. John's orders against shedding blood this night, were obviously being ignored by his desperate companions.

John vaulted into his own saddle and struck the rump of Alice's beast sharply. "Let's go!" he yelled.

Don, shouting the battle halloo of the Clarks, came scrambling up the hill. He leaped into his saddle

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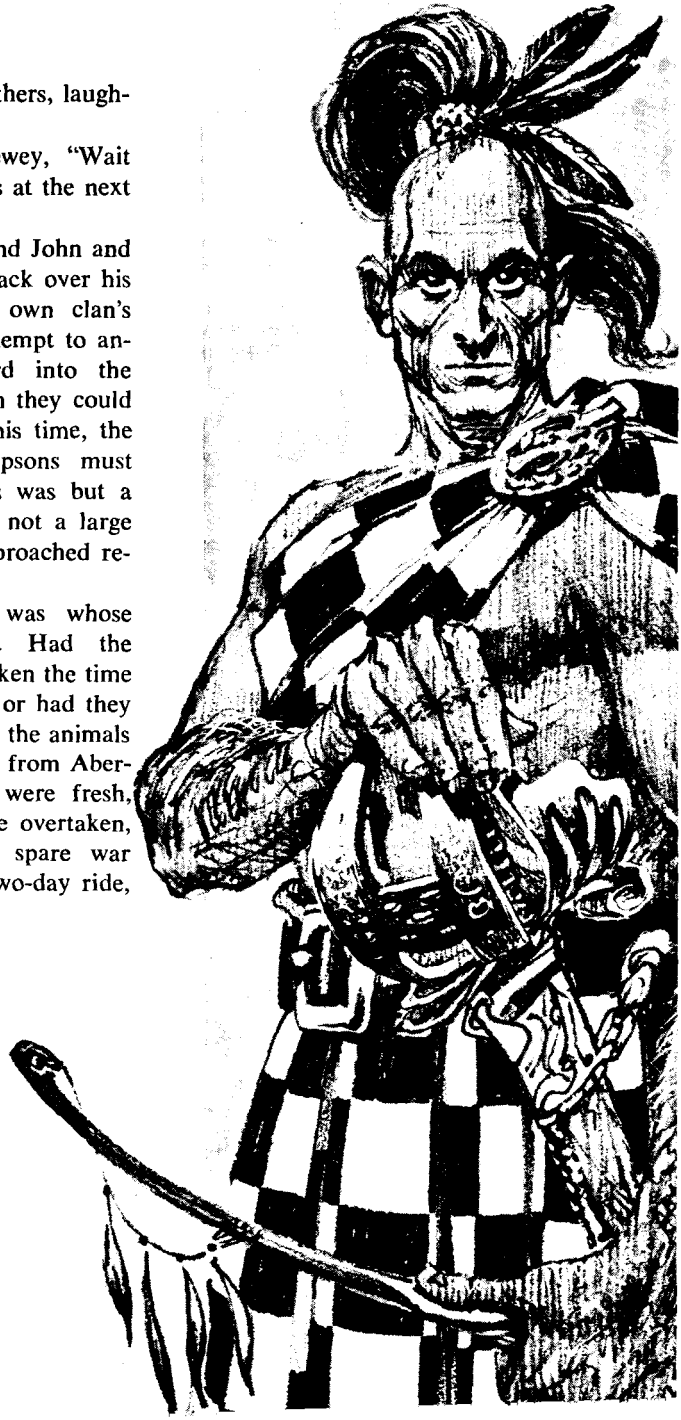
and hurried after the others, laughing now in full glee.

He called after Dewey, "Wait until the bards sing this at the next muster."

Dewey, slightly behind John and Alice, and still firing back over his shoulder, shouted his own clan's halloo but made no attempt to answer. They rode hard into the night, and behind them they could hear the pursuit. By this time, the revenge-minded Thompsons must have realized that this was but a very small group, and not a large raiding party to be approached respectfully.

The question now was whose horses were freshest. Had the Thompson clansmen taken the time to secure fresh horses, or had they taken up the pursuit on the animals they had just ridden in from Aberdeen? If their horses were fresh, then the four would be overtaken, for in spite of their spare war steeds, it had been a two-day ride, with little rest.



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Dewey and Don had dropped slightly behind to fight a rear-guard action, but now they pulled up more closely.

Dewey called, "John!"

John turned in his saddle and looked back. His two companions were behind, but Don's face was pale and he reeled in his saddle.

John blurted, "Don!"

Don grinned at him, then grimaced. "I've taken a slug in my side," he said.

V

By morning, they had shaken the pursuit, at least temporarily, and stopped at a waterhole both for the animals and to inspect Don of the Clarks's wound.

Alice of the Thompsons, though she avoided the eyes of the obviously lovelorn John, cooperated. It was somewhat unseemly, for her abduction was not quite complete as yet, nor would it be until they had gotten her safely back to Aberdeen.

They stretched Don out on a cloak and with her own skean she cut away his clothing at the point the carbine slug had entered and also where it had emerged. No bone had been shattered, but it was an ugly wound and he was pale, having lost considerable blood during the night's pounding ride.

Being a clansman, he allowed himself not even a groan as she worked on him, but several times he winced involuntarily.

It was no time for feminine shame, she lifted the skirt of her gown and tore a long strip from her undergarment. John and Dewey stood anxiously to the side, staring down at their wounded companion. They had seen carbine hits before, this one boded, no good.

Alice worked deftly. She, too, had seen men torn in combat in the past. Indeed, she had lost all her immediate male kin in such fray.

Finally she came to her feet. She turned and for the first time she looked into John's face. "He should rest," she said. "And he shouldn't be moved for a time."

John of the Hawks shook his head. "For the moment, we have shaken them. But they must have troops scouring the heath, and we are barely over the line into the preserves of Aberdeen."

Alice said, her voice level, "The proof is there before you. He should not be moved. Leave him here with me, and I will await them. I pledge on the honor of the Clan Thompson that he will not be killed, but taken into our clan as a servant."

"And stripped of my kilts and made a clansless one?" Don snorted. He rolled to one side and struggled to get to his feet. Dewey bent and helped him.

"Tie me to my steed," Don ground out. "I'll make it."

John rode on one side of him, Dewey the other, and they took up the way again to Aberdeen.

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As they neared the main gate, they could hear the conch sound.

Dewey groaned, "You forgot to change. You're still wearing the kilts of the Clan Thompson!"

They were already within carbine range.

Dewey dashed forward, desperately, his hands high above his head. He alone, among them, wore the kilts of a clansman of Aberdeen.

By the time John, Alice and Don had arrived at the gate, the warder and his men had been sufficiently warned to do no more than boggle at them. Never before had they seen proud clansmen, fellow phyletics, attired in the kilts of another phylum. Never, for that matter, had they seen a bride *literally* stolen.

But John had no time now for explanations, nor for reflecting in glory, though surely the criers would shout this to the housetops, far into the day.

He snapped, "Don of the Clarks is bad wounded. Hurry him to his bedel."

Four men untied the wounded clansman from his saddle and, as gently as ever they could, carried him away. They ignored his shame; Don of the Clarks had long since fainted.

John looked after him for a long moment, in dismay, but then shook his head. First, he had other duty.

He turned to Alice and said, "Lass, I will take you to be presented to the sachem of the Clan Hawk."

She could do nothing but abide by the correct procedure. She followed after him. Phyletics, both male and female, adult and child, watched their progress to the longhouse of the Hawks.

When they knocked on the door of the quarters of the sachem, they were immediately admitted. Robert of the Hawks stood there in his living room. Several members of his immediate family were also there, eyes wide, but he dismissed them, a bit curtly.

He ignored Alice and looked John directly in the eye.

John failed to quail. "I present Alice of the Thompsons, whom I have honorably stolen to be my bride."

"Honorably! You have then, without doubt, paid the brideright to her kin!"

John said doggedly, "It is not against the ban. For long years I approached the Clan Thompson through their sachem at the yearly meetings of the Dail. And always I was refused. I read deep into the Holy books and all accounts that have come down to us from the misty years and before."

Robert, Sachem of the Hawks, was interested. "And what did you find there?"

"That in the old days, before the Keepers of the Faith had devised upon the present method of paying brideright, and thus eliminating

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much shedding of the blood, clansmen were wont to steal their brides at point of claidheammor, and it was not against the ban to do so."

"But it is against the ban now!"

John looked him in the eye. "No. It is not against the ban. At most it is unseemly, but it is not against the ban and I have had great provocation."

The sachem thought about it. He said finally, "I will consult with the Keepers of the Faith and the clan bedel and will inform you of our decision later. And now"—he turned to Alice of the Thompsons —"until you have been taken by John as his bride—if that is allowed to happen—you will be a servant, lass." He added, his voice more kindly, "I will take you into my own family, and my wife will make you at home and show you your light duties. Perhaps the Keepers of the Faith will rule that the Clan Hawk has been shamed by your abduction, and you will be returned to your kin."

She said evenly, "If I am returned to my kin, I will be shamed and undoubtedly stripped of my clan position, for I failed to attempt my life upon being stolen."

His voice was still kindly. "I will mention that aspect to the Keepers of the Faith," he said. "However, I am sure you were seized by force and hence could not honorably take your own life."

Alice was a well brought up lass and knew how to conduct herself before a sachem. She said, "I submit to Robert of the Hawks."

It was unseemly now for John of the Hawks to speak further to her. He saluted his chief and turned to go.

But Robert said, a different tone in his voice. "A moment, John. What transpired? I suspect, if the Keepers of the Faith report that all is well and that the ban has not been broken, that the bards will long sing this exploit."

John said, avoiding the eyes of Alice, since her clansmen had been shamed in the events, "As soon as the Dail had adjourned, I, with Dewey of the Hawks and Don of the Clarks, rode by back routes to Caithness. While Dewey guarded the horses, Don and I scaled the walls and . . ."

"You entered Caithness!"

"Yes. And hid ourselves in the quarters of Alice of the Thompsons until she appeared. We then seized her and made our escape, Don of the Clarks counting coup upon three of her kin, and I counting second coup on one."

"Counting coup! At such a time! How many, then, did you find it necessary to kill? Aiii, the vendetta will rage this year. I must triple the guard on the herds at once.

John said, "We spilled no blood, thinking it not meet under the circumstances. At least we spilled none in Caithness, though perhaps Dewey and Don did whilst covering our retreat."

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Robert stared at him, though he himself had long been a man of action. He said, "The bards will certainly long sing this exploit. I have never heard, in their oldest praise, of such an event."

John said, "With your permission, Robert, I shall now go to Don of the Clarks, who was badly wounded in the fray."

"Aiii, lad, hurry. I know how close you are." Robert turned to Alice. "Come now, and I will present you to my good wife. You have no fear, in this longhouse, Alice of the Thompsons."

"I have no fear," she said, and let her eyes follow John as he left, which was slightly unseemly but only amused Robert of the Hawks who was himself married to a lass of Caithness, though not a Thompson. Perhaps his wife was acquainted with Alice.

John stared down at Don of the Clarks, who was sprawled on a cot in his quarters in the Clark longhouse. The bedel was there, and Sally, but the two young children had been hustled from the room.

Don's face was flushed and had a thin, drawn look that was bad.

The bedel said, "I fear the fleshrot."

Sally held the back of her right hand to her mouth.

John said, "It is too early to know that." There was accusation in his tone.

The bedel shook his head. He was an old man, well versed in medicine. At least, as well versed as any in Aberdeen. "I am not sure, but I fear. The wound should have been cleaned more promptly and better and the spider dust should have been applied."

"We had no time even to boil water. The Thompsons were in pursuit."

The bedel shrugged.

Don got out, "It is not important. I will be up and around before the day is through. The Thompsons do not dispose of Don of the Clarks quite so easily."

John reached down and mussed the other's hair, fondly. "That they don't, Don," he murmured. "I promise that."

Don fell into a sleep and John, not wishing to leave him, drew to one side of the room with the bedel, while Sally sat at her husband's side. She was a slight girl, and now infinitely worried, as she had occasion to be; one seldom recovered from the fleshrot.

John of the Hawks whispered, "What has transpired with the strangers since we have been gone?"

The bedel scowled. "Bertram of the Fowlers took the soma."

"And?"

"And within twenty-four hours his sight has become that of a twenty-five year old clansman."

John sucked in air. Not that he was overly surprised.

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The bedel said, "Nor is that all. The gnawing pain in his belly is gone. For the first time in long months, it is gone. The Guru used some mystic term, cancer, which not even we bedels and Keepers of the Faith understand. But whatever, the pain is gone."

"And what else has transpired?" John of the Hawks could sense what was coming, but he must know.

"Bertram has been cast down from the post of bedel of the Fowlers, and his kilts have been stripped from him and he is now a clanless one. However, he cares not, no more than Robert of the Fieldings cares, and he was once the boldest raider of Aberdeen."

"I know," John said. "And?"

"Others say they will take the soma, and there is great talk against the strangers amongst the Keepers of the Faith and the younger clansmen, though the women and those elderly enough to feel the burdens of age and sickness, largely speak for them."

John thought about it. "And what do the younger men wish to do with the men from Beyond?"

The bedel said in disgust, "What *can* be done? Obviously, the Guru, at least, is a holy man. He performs miracles."

"He performs medicine," John growled. "While we of Caledonia have remained stationary with our bans and our traditions, they have advanced in every direction. The so-called miracles of the Guru are simply medicine far in advance of that we know in Aberdeen, or in any phylum, for that matter."

The bedel was scowling again. "You sound as though you speak against the ban, Clansman. Let me point out to you that it is beyond a simple war cacique to understand all aspects of the Holy and of the Holy books. It takes long years of study, long years of contemplation, before one can even begin to interpret the true meaning of the Holy books. I cite a simple example, the first verse from one of the four:

The stag at eve had drunk his fill
Where danced the moon on
Monan's rill

"Now then, lad, it is commonly understood that a stag was an animal of the chase, on one of the worlds Beyond. But, tell me, what is a moon, and how does it dance? And, above all, what is a Monan's rill? And these are but simple problems that we bedels and Keepers of the Faith must dwell upon."

"I don't know," John said. "But it is I who wish to preserve the old ways. These so-called holy men will destroy all, and it will result in clanlessmen such as this Mister of the Harmons stripping us of the products of our lands."

The bedel said, "Why do you think all this? How do you know?"

"I haven't the time now to reveal, Bedel of the Clarks, however, I will tell all at the next meeting of the Aberdeen muster."

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He turned back to Don, who was breathing hard in his sleep, and stared down at his feverish comrade in blood. He turned again to the bedel. "You are sure it is the flesh-rot?"

"I am fairly sure."

Sally closed her eyes and moaned.

John gripped her shoulder and squeezed. "I have promised Don of the Clarks will survive."

"You promise more than you can deliver, John of the Hawks," the bedel grumbled.

John of the Hawks went to his own longhouse and to his assigned quarters, and banged on the door.

It was opened by one of the expressionless, younger orange-clad strangers. The two were remarkably colorless. John wondered, in passing, if taking soma did this to a worshiper at the Shrine of Kalkin.

He said, "I wish to talk to Mister of the Harmons."

"He has returned to the *Revelation,*" the stranger from Beyond said tonelessly. "Aberdeen is not the only town in which we spread the word of Lord Krishna. There are duties elsewhere."

John said impatiently, "Then Guru of the Marks."

"The Guru is meditating upon the path of the Lord Krishna."

The other was a man of no more than six feet, a puny creature compared to John of the Hawks. John, in irritation, put a hand on the stranger's chest and pushed him back and to the side.

"It is a matter of great importance," he growled. He looked about the room. It was furnished considerably different than it had been when he was in residence. Various shiny metal devices and gadgets were here and there. Gray metal cabinets, holding John knew not what, lined the walls of the chamber. There was a high-raised hard bed in the room's middle, which reminded him strongly of the beds the bedels used when surgery must be performed upon the wounded.

The orange-clad stranger began to remonstrate with him, albeit in a gentle voice, but at that moment Mark, the Guru, entered from a back room.

He said, with his usual calm dignity, "Ah, my son. You have come at last to take your soma and follow the footsteps of Lord Krishna?"

"No," John said, "I have not. I have come to ask that you use your medicine to cure my blood companion, Don of the Clarks."

"He is ready, then, to take the soma?"

John's eyes narrowed. "No, he is not."

The other said mildly, "Then how can I invoke the Lord Krishna in his behalf?"

John said impatiently, "Guru of the Marks, you use your words in double meaning. I am beginning to suspect that such is the custom of

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all men of religion. The truth! Is it necessary to take soma for you to cure ills incurable by our bedels?"

The Guru looked at him for a long moment. Finally, he said, "What is wrong with your friend, my son?"

"A carbine slug in his side. We were on a raid against the Thompsons of the Caithness Phylum."

"Thou shalt not harm, my son. Evil begets evil."

John snapped, "Nevertheless, the fleshrot has set in, and our bedels are unable to cure the fleshrot when it is in the body. An arm or a leg, yes. They can amputate. But not in the depths of the body, and this wound is immediately beneath the lung."

"Gangrene," the Guru muttered unhappily. "How long since the wound was taken?"

"Three days and more."

"Too long," the orange-clad assistant said. "Only the auto-hospital in the *Revelation* could handle him if the flesh has been gangrenous for that long."

John's eyes went from one of them to the other. "What is an auto-hospital?" he demanded.

The assistant looked at the Guru, who said, "The Lord Krishna has seen fit, my son, to provide his followers of the path to the Shrine of Kalkin with the means whereby to cure all ills, save those of time. So it is that we, who walk with Lord Krishna, live lives free of sickness until we are ready to be gathered to the bosom of Kalkin."

John snapped, "You still talk with double meaning, Guru of the Marks. But this auto-hospital will free Don of the Clarks of the fleshrot?"

"Yes, my son. But Harmon has returned with the skimmer to the *Revelation* and is not to return for a week. By that time our work here in Aberdeen will be through, for the time, and we will proceed to the next town, leaving the good work here to be continued by those who have taken up the path of Krishna."

Without further words, John of the Hawks turned on his heel and left.

Outside the longhouse he barked orders to several of his clansmen who were standing about. Two horses were brought up, a litter rigged on one of them.

Dewey said, "What do you propose?"

"The fleshrot has set in. This Guru of the Marks informs me that on the ship from Beyond there is means to cure it. I take Don of the Clarks to Nairn."

"But it is a three-day ride!"

John looked at his kinsman.

Dewey said, "He will be dead before you arrive."

VI

John of the Hawks brought his steed to a halt and looked up at the

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looming spaceship. As before, the ramp was down and the entry open, though no one was in sight. He wondered vaguely at the arrogance of the strangers from Beyond. Did they feel immune to raid?

He dismounted and turned to the other horse and its burden. As gently as was possible, he worked at the litter, unbinding the unconscious Don, lifting him carefully. There was a nauseating stench of putrefying flesh.

He slung his companion-in-arms over his left shoulder, so that his right hand could be free, and began the ascent of the ramp.

The ship's defenses were not as negligent as all that. As he reached the entry port, two of the strangers from Beyond stepped forth. Both were dressed in the clothing of Harmon, the dark garb of the acolyte of the religion of the Shrine of Kalkin. However, neither were of the caliber of the Guru or his orange-clad assistants. At least, so their expressions suggested.

Nor were their voices exactly the gentle tones of Mark.

One said, "Where do you think you're going, Big Boy?"

John came to a halt and said, "I have come to cure the fleshrot in the auto-hospital told of by Guru of the Marks."

The second of the strangers wrinkled up his nose. "If you think you're going to bring that stinking specimen into this ship, you're more of a dully than you look."

The other one said, "None of the monks are around, Big Boy. Go on over to town, there're a couple of them there. They'll take care of you."

John said evenly, "I am not of Nairn. I am of the Hawk Clan of Aberdeen. I have ridden far to reach the auto-hospital, and my comrade is near death."

"That's too bad, but you're not coming into the *Revelation*. Skipper's orders. No Caledonians inside the ship, unless the Guru personally brings them in."

John said, the bleakness of the wastelands in his voice, "I take my blood comrade to the auto-hospital, man from Beyond. I suggest you do not attempt to hinder me."

The other answered that by darting his hand inside his jerkin. But he reckoned without the abilities of the most celebrated war cacique of Aberdeen. His handgun had hardly cleared his clothing before he felt the sharp sting of the skean bite deep into his side, then rip toward his belly. All turned black, even as he caved forward.

His dagger free again, John of the Hawks turned to the other, the bleakness in his eyes now. "You will lead us to the auto-hospital, man from Beyond, or you will share the fate of your fellow."

The other was obviously a slink, John of the Hawks realized. His whiteness of face proclaimed that. He turned and started down the metal corridor, his shoulders held

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in such wise that he obviously was afraid of having the clansman behind him, expecting momentarily to feel the skean in his back. John sneered his contempt and shifted the body of Don of the Clarks slightly, to relieve the cramp of his burden, for his blood comrade was no small man.

The corridor was long and unrelieved by other than periodic doors. They tramped along, wordlessly.

At long last they reached a portal somewhat larger than the others, and the spaceman turned, his face surly. "This is the entry to the auto-hospital," he said.

"Very well. Lead the way."

The other shrugged and opened the door, and entered, John immediately behind. The man from Beyond stood to one side.

The room was fairly large, furnished considerably as Mark the Guru had furnished John's living quarters in Aberdeen, that is with equipment obviously of a medical nature, though not understood by John; with metal files, and medicine chests and all spotlessly sterile.

And in the center of the room, a sardonic twist on his mouth, stood Harmon, a weapon in his hand directed at the belly of the Caledonian.

"Welcome to the *Revelation,* John of the Hawks," he said.

John looked at him.

Harmon said, "Did you labor under the illusion that you could force your way into a spaceship without setting off alarms? Are you so empty that you couldn't guess that every word you've spoken since you entered the ship has been picked up?"

John said, "I have brought Don, Sagamore of the Clarks, to be treated in the auto-hospital, Mister of the Harmons."

The other spaceman blurted, "He knifed Petersen. I think he's dead. Give him the flamer, Skipper!"

Harmon said thoughtfully, "I don't think the Guru would approve of that, Jim. Besides, it would dinge up our image with the locals. Remember our bit, thou shalt not harm."

"But he finished Petersen!"

"In honorable defense," John said. "He drew his weapon."

Harmon stepped back and sat down in a chair, his gun still at the ready and his face thoughtful.

"A sagamore, eh?" he said. "That's kind of a sub-warchief, isn't it? And you're raid cacique of your clan, aren't you John? It occurs to me that you are two of the top bully-boys of Aberdeen."

John, ignoring the other's hand weapon, stepped over to the white-sheeted operating table and deposited Don there, making the unconscious clansman as comfortable as possible. He turned then, back to the *Revelation*'s captain.

"He is dying," he said. "Where is the auto-hospital?"

Harmon nodded in the direction of a door studded with dials,

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switches, small wheels, meaningless to John of the Hawks. "In there," he said.

John said, "We must hurry, or he is dead."

Harmon said, musingly, "It would be quite impressive if the two of you returned to Aberdeen as loyal followers of Lord Krishna, wouldn't it?"

John stared at him.

Harmon jiggled his weapon. "Jim," he said, "help this overgrown dully put his friend in the auto-hospital, and activate it."

Jim growled, "He knifed Petersen."

"Forget about Petersen. Evidently, it's too late to worry about him now."

Grumbling, the spaceman opened the indicated door and motioned to John who took up Don in his arms, as a baby is taken up, and carried him into the small compartment beyond. The interior was only bewildering to him. However, there was another metal bed.

"Take his clothes off," Jim directed sourly. "Bandages and all."

"He will bleed to death."

"He won't have time to. The minute we step out of here he begins to get blood transfusions." The other began to throw various switches.

John obeyed orders.

"All right," the one addressed as Jim said. "Now get on out."

Back in the room with Harmon, John watched as the spaceman closed the door, isolating Don of the Clarks.

John said, "What happens now?"

Harmon said, "Down over there. Sit down, where I can watch you. Jim, get back to Petersen. If he's still alive, get one of the other boys and get Petersen into the auto-hospital. If he isn't, put him in Disposal and get back to your watch. We're shorthanded with so many out spreading the good word of Lord Krishna."

Jim left and John of the Hawks seated himself as directed, keeping his eyes on Harmon.

Harmon jiggled his gun again in an amused fashion and smiled mockingly at the clansman. "What happens now? We wait about an hour or so, and then your buddy-buddy comes out all whole again. And then the two of you take your soma and return to Aberdeen to set a good example. Six months from now, oh, perhaps a year, and you'll both be working in the new mines, all civilized, along with everybody else on Caledonia."

"What is this *civilized?*" John said. Inwardly, he quailed, but he would have been shamed to have the other see it. He knew the power of the other's weapon. It was what DeRudder had once called a flamer. But it was not the gun that caused him to feel a slink, but the other's threat to make them take the dreaded soma.

"Civilized?" Harmon said, a cyni-

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cal grin on his face. "You wouldn't know, would you? We've got time to kill, John of the Hawks, so I'll tell you a story. It's a story about you—you and the rest of Caledonia. I think I've got it reconstructed fairly well. Krishna knows, it's taken me the better part of the past ten years to trace it down. It started some centuries ago, when one of the early colonist ships, the *Inverness Ark* was thrown out of warp and wound up here, far, far from where it was headed. The ship crashed and it must have been one dilly of a crackup since evidently things were destroyed to the point where they only rescued four books."

"The four Holy books, you mean?" John said.

Harmon laughed. "A volume of quatrains by an ancient Persian, an epic poem by a British romantic period writer named Scott, 'Ancient Society' an early work on American ethnology, and a volume by H. J. Muller on genetics. Holy books! What a combination upon which to base a whole culture."

John didn't understand the amusement, but he said, "Go on with the story, Mister of the Harmons."

"Of course. Practically everything must have been lost, and in the attempt to survive, a tribal culture based strongly on ritual and taboo evolved. The earliest of the Caledonians—that name, and other names you use, bear out the fact that most of the colonists were Scottish—must have understood your books well enough to take steps to strengthen your bloodlines by diffusing the genes as universally as possible. They adopted a gens system, based on Morgan's anthropological work among the Amerinds."

John, scowling, and getting only a portion of the other's meaning, said, "You mean the holy man, Lewis of the Morgans?"

Harmon laughed. "Is that what you call him? At any rate, the steps taken to preserve the colonists from interbreeding, resulted in your society becoming ossified. You're at about the same stage of development as the Iroquois, although you've got a few things, such as gunpowder and the working of metals, that they hadn't."

The skipper of the *Revelation* yawned. "However, that'll all end now. We'll bring you out of barbarism and into civilization in one generation. The last generation, in fact. After that, Caledonia will have to be colonized all over again, soma being soma."

John said, "What is this soma that you intend to force us to take?"

Harmon jiggled his gun again. "Soma, my friend, is the most notable of the psychedelics, or hallucinogens, if you will." He pointed with his gun. "There, on the table."

John looked. On the small table indicated were two of what looked to be tablets of sugar.

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"I got them out for you and your brawny friend," Harmon said, in mock agreeableness.

"What is an hallucinogen?" John said.

"Well, it's a long and interesting story," Harmon said. "Man's history does not go back far enough to give the origin. Indeed, some scholars, such as the early Englishman, Robert Graves, explored the idea that the raw mushroom, *amanita muscaria,* was the so-called ambrosia of the worshipers of Dionysus. That the Eleusinian, Orphic and other Mysteries associated with Dionysus were all based on the eating of this early hallucinogen. Indeed, the eating of the mushroom *psilocybe* by the Masatec Indians of Oaxaca, Mexico, invoking the mushroom god Tlaloc, was very similar. Fascinating subject, don't you think, John of the Hawks?"

John realized the other was cozening him, but kept his peace.

"My own belief," Harmon continued, "is that the Guru is correct when he tells us that the soma of the early Indus Valley civilization was an hallucinogen that so affected the people that they could not bring themselves to violence. Thus it was that when the, ah, impetuous Aryans came down from the north they found such towns as Mohenjo-Daro and Harappa without even walls in the way of defense. Archaeologists in excavating the Indus Valley towns, find much in the way of art and artifacts, practically nothing in the way of weapons. You see, soma then, as now, so affected its takers that they could only subscribe to the, ah, you would call it a ban, *thou shalt not harm.* The tradition of being vegetarians came down well into historic times among the Hindu Indians."

John said evenly, "I do not understand much of what you say, Mister of the Harmons. I suspect you jest at me, and remind you that already we carry the bloodfeud."

Harmon chuckled. "Another hour or so, my outsized lad, and you will feud never again, neither with me nor anyone else. A great prospect, eh? But to get back to our hallucinogens. One of the earliest was *cannabis sativa,* known variously as hemp, kif, bhang, hashish, ganja, charas and marihuana, in its various forms. A rather mild hallucinogen, as a matter of fact, though the ambitious Hasan-i-Sabbah, is said to have put it to profitable use. Ah, it is from his name we derive the term assassin."

He was obviously enjoying himself. "Then, of course, there was peyote, beloved of the Amerinds, but not really to come into its own until mescaline, its active ingredient, was extracted in the laboratory. In fact, the hallucinogens as a whole didn't achieve to their heights until they were taken up by the scientists and the whole field of biochemistry was precipitated

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into a new look at the brain. The real breakthrough took place when a new compound of lysergic acid, derived from a common fungus called ergot, was synthesized. Lysergic acid diethylamide, or LSD, if you will."

John said, "You mock me, Mister of the Harmons, with your unknown words; however, you have still to tell of this soma."

Harmon jiggled his weapon in amusement. "But that is what I *have* been telling you, friend John. Soma is king of them all. He who takes soma is cured of all mental ills. He, ah, reaches nirvana while still on this mortal coil, so to speak. All passions are beyond him."

"All passions?" John was scowling. "You mean that even sex becomes meaningless? The love between man and woman?"

"Exactly. That and all other passions, my bully-boy, as you are soon to discover. But not just sex becomes meaningless, but the desire for, well, say, fame, power, wealth. All things that ordinarily men strive for become meaningless when one has walked with Lord Krishna."

Inadvertently, John ran a tongue over his dry lips. "That is nonsense. It is but a saying, walking with Krishna."

Harmon grinned mockingly. "To the contrary. Evidently, when one takes soma he actually, in his hallucinations, thinks he meets and talks and walks with Lord Krishna, who explains all to him."

"All of what?" John asked.

Harmon shrugged. "But how would I know? As yet I have not taken soma. Perhaps when I am an old man, and free of human passions, I will. But for just now, no thank you. I feel as do most. I can wait a while."

John said very evenly, "But if the relationship between man and woman became meaningless, then there would be no succeeding generations."

Harmon smiled jovially. "Of course, but that is not deemed of importance to the Guru and the others who worship at the Shrine of Kalkin. The sooner all are gathered to the bosom of Kalkin and are united in one transcendent, ah, *soul*, the better."

There is a great difference between a warrior born and a soldier trained. Harmon, as a younger man, had once taken military training on one of the more backward planets belonging to the League. However, it would not have occurred to him to rush a man who had him covered with a weapon as deadly as a flamer. Nor would he have dreamed that a man as large as John of the Hawks could move so fast.

He jiggled the hand weapon once too often. Momentarily, the muzzle was directed at the ceiling.

The weapon flamed briefly, a pencil of light and heat, but Harmon had not the time to direct it with accuracy. John of the Hawks was upon him—less than gently. A

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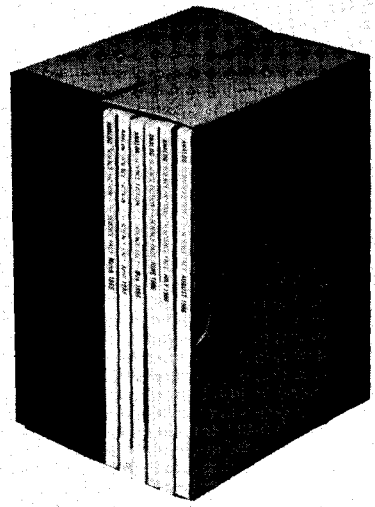

fist, a cubic quart in size, banged upon the side of his head, and he went under into temporary oblivion.

John stared down at him, momentarily, then stooped and swept up the gun and stuck it in his belt. He went to the small table upon whose top sat the two soma pills and picked up one of them. He stooped down again and pried open the fallen man's mouth and popped the pill inside.

"If you choke on that, so much the better," he growled.

He stood for a moment in thought, then returned to his chair and sat himself again, waiting patiently for Jim or one of the other members of the *Revelation*'s crew.

They took almost as long to return to Aberdeen as they had taken on the way to the spaceship, since, although Don of the Clarks was healed in body, he was still weak from loss of blood and his descent so deep into the valley of death.

They talked it out considerably on the way and had reached conclusions by the time they came up to the gates of Aberdeen.

"We have the means now to rally the clansmen," John of the Hawks said. "We shall recommend to the muster that two criers go forth at greatest speed to Caithness and to Dumbarton, one to each, and spread the word of warning. Caithness will send forth, by fastest steed, two criers to give warning to two

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other towns, and Dumbarton will do the same. And thus, on and on. Each town will warn two more. Within three months, surely every phylum on Caledonia will have had the warning."

"Aiii," Don said grimly. "And it will not be too soon, for by that time, how many will have taken this accursed soma?"

"Too many," John admitted. "But there is naught else we can do."

"And then what?"

"Then the plans of these other worldlings will be thwarted. For the time at least."

Don looked at him questioningly.

John said, "But they will come again. And next time, undoubtedly, in other guise. We must prepare, Don of the Clarks."

"Prepare? Prepare for what? And how?"

"Some of the old ways must go. No longer is Caledonia unknown to these men from Beyond. They know we are here, and some, at least, yearn for our resources. To repel them we must change many of the old ways."

Don stared at him. "But that is against the ban!"

John said, "That is one of the institutions that must go."

When they reached the gates of Aberdeen, John shouted loudly, "As Raid Cacique of the Hawks, I summon the muster for emergency council!"

A crier who had been standing nearby, dashed for the town square to sound the conch.

Dewey came riding up, grinning elation. "John! The Keepers of the Faith have ruled! Our raid was not against the ban! I am to be raised to sagamore at the next muster, and it is rumored Don of the Clarks will be made a raid cacique! Your exploits are being sung by the bards!"

"Aiii!" John yelped. He leaped to the ground and threw the reins of his horse to his kinsman. "Here, take the animal. Meet me at the square in five minutes. I go to see Alice of the Thompsons."

He ran for his longhouse, even as the conch began to sound.

He banged into the great hall of the Clan Hawk and hurried to the door of Robert, the sachem. Without knocking, he dashed in.

She was there, alone, in the living room. And at his entry, looked up, her eyes shining.

He came to her. "Alice!" He put his hands on her shoulders. "The Keepers of the Faith have ruled that you can honorably be my bride."

There was a serene quality in her face that he didn't quite understand. He said, "Alice, what's wrong?"

She said gently, "Nothing is wrong, John of the Hawks. And nothing will ever be wrong for me again. I walk in the path of Lord Krishna." ■

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the reference library

P. Schuyler Miller

CHRISTMAS STOCKING

During the year I try to report on outstanding "juvenile" science fiction as it is published—at least, on books that might just as well have been carrying the adult label except that they probably sell better to libraries if they're tagged for teens. Occasionally I get my hands on a lot of juveniles at about the same time and suggest them for Christmas gifts or—if you don't see this until after Christmas—as a way of spending some Christmas money. Because there are so many of these books piled up in front of me, I am going to change the usual format of the department and comment on them one by one, from the best on down the line.

"The Programmed Man," by Jean and Jeff Sutton (Putnam; 192 pp.; $3.95) is one of those stories that might very well have appeared in any of the adult SF magazines—at least those of a few years ago. It's an intricate, lively spy story set in the far future when a galactic empire is beginning to crumble. This and the next are right in the league with the stories Keith Laumer and Poul Anderson write about the same kind of milieu.

"The Beyond" by the same husband-and-wife team (Putnam; 223 pp.; $3.75) is almost as good. There's a nicely nasty situation in which the galactic Establishment has exiled all its psionically talented to a prison planet. When a "Beyond," who can teleport, is reported there, they decide even that is not safe enough and send the cops to cut his throat. Only an agent of a more reasonable government agency, himself a telepath, gets there first.

"Dark Piper" is Andre Norton's novel-of-the-fall (Harcourt, Brace & World; 249 pp.; $4.25). I enjoy her books for the way in which she creates worlds and races, leaving a great deal to her reader's fertile imagination. Even in long series like her "Witch World" books for

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Ace, she never spells out the whole background or explains all her puzzles. Some teachers and over-literal adults hate this; the fashion is to dot every "i" and cross every "t". In this book an old soldier returns to a frontier world which wants only to be left to grow deeper moss. It's the end of a planetary war—hard characters are roving space—and he anticipates that they'll be along some day, looking for trouble. When the trouble starts, he and a group of children and teen-agers are holed up in a series of almost forgotten tunnels and caves. He is killed, and the kids grow up by making their own way out into a plague-swept world where mutant lab animals are taking over.

"The Pool of Fire," by John Christopher (Macmillan; 178 pp.; $4.25) concludes the trilogy that began with "The White Mountains" and "The City of Lead and Gold." Extraterrestrials from a world with what sounds like a chlorine atmosphere have taken over Earth and an underground is trying to defeat them, infiltrating its young people into the invaders' dome cities. We're now among the books that really are juvenile—"written down" to junior high-school level or younger.

"Mission to the Heart Stars," by James Blish (Putnam; 158 pp.; $3.75) is a sequel to his "The Star Dwellers." His young hero is one of an embassy sent to the rulers of the confederation which assumes proprietary rights over the entire galaxy, in the hope that they can persuade the stellar bureaucrats to shorten Mankind's fifty-thousand-year probation. They discover that even on a galactic scale, bureaucrats and oligarchs are far from flawless. For my taste, Blish has watered this and the next book down far more than he needed to do—as witness the books by the Suttons, which the same publisher bought, and their long series of extraordinary Heinlein juveniles.

"Welcome to Mars," by Blish (Putnam; 160 pp.; $3.75) was written before Mariner sent back the photos of the real Mars, but it wasn't necessary to change the book much. For the sake of the story, Mars is given a breathable atmosphere and there are "Martians." For the sake of the twelve-to-sixteen audience, its hero is a backyard genius who equips a tree house with a gravity control, goes zipping off to Mars, is followed by his girl-friend in an even leakier packing-box prototype, and stays alive until the U.S. Cavalry arrives. Unbelievable, but sort of fun.

"Rocket Rescue," by D. S. Halacy, Jr. (W. W. Norton; 192 pp.; $3.95) brings us down to sixth grade level; the publisher's code says ten to fourteen year olds are the target. It's a simple, straightforward, well told story of almost documentary vein, like some of Heinlein's juveniles but more ele-

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mentary. One of a pair of twins graduates into the Space Squadron; the other is dumped into the Rocket Rescue corps, a crew of self-condemned sad-sacks with obsolete equipment, a hard-nosed commanding officer, and nothing practical to do—until a real crisis does arrive. Halacy is another writer who should be encouraged to raise his sights to the older group.

"Prisoners of Space," by Lester del Rey (Westminster Press, Philadelphia; 142 pp.; $3.75) takes us to a colony inside the Moon, rather like the one Robert Heinlein has in his "The Moon is a Harsh Mistress" but less intricately realized. As you'd expect, it's very well done for the younger reader group. The plot thickens as Earth decides to abandon the colony, two youngsters born on the Moon discover that they can't live on Earth, and they discover a seeming Moon animal in a worked-out mine.

"Marooned in Orbit," by Arthur W. Ballou (Little, Brown & Co., Boston; 184 pp.; $4.50) is old-fashioned boys-book formula stuff with everything in it, including—I'm sure—the kitchen sink. It falls, unintentionally I'm sure (again), into a class that anyone above the sub-teens would find boring.

"Escape to Witch Mountain," by Alexander Key (Westminster; 172 pp.; $3.75), on the other hand, is simple but excellent science fiction for younger children, but by no means written down. Tony and Tia are orphans with strange powers, evidently—to us veterans—strays from a party of Extraterrestrials like "the People" of Zenna Henderson's stories. Since their powers may have a cash value, various guys in black hats are after them while they head for a rumored hamlet of "witches" in the southern mountains.

"The Day It Rained Forever," by Robert C. Lee (Little, Brown; 178 pp.; $3.95) is evidently one of a series—tagged for eight to twelve, and tagged just about right. It's the kind of story *Boys Life* seems still to be printing. Eccentric scientist invents a rain-making machine, is injured, and his machine goes right on pouring rain on California like the salt mill in the ancient fairytale. The boys—one of whom was given a super-powered arm in an earlier book—struggle through storm and flood to find and shut off the machine. Simple? Yes, but it's realistic enough so that it wouldn't be a bad place to start the very young.

And I've saved for the end a very well-written borderline book that would belong right up at the top if the science fiction element weren't so slight. It is "The Young Unicorns," by Madeline l'Engle (Farrar, Strauss & Giroux; 245 pp.; $3.75), whose award-winning "A Wrinkle in Time" you should have read, juvenile or no. The book is one of a series about a family whose father is a biomedical re-

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searcher. They are now settled in New York, near Columbia University and the Cathedral of St. John the Divine, and mixed up in some very peculiar events which include the misuse of microwave radiation to control a street gang. There's a distinct flavor of C. S. Lewis and Charles Williams to the religious side of the story. The young people are real, the plot is good, the neighborhood comes to life—in short, here is a book by an extremely capable writer which is almost science fiction.

WORLD'S BEST SCIENCE FICTION: 1968

Edited by Donald A. Wollheim and Terry Carr • Ace Books, New York • No. A-15 • 319 pp. • 75¢

In four years these Ace annuals have earned their title as the best of the "Best" anthologies. Judith Merril, long the title holder, has broadened her horizons to make "S.F." mean "speculative fiction" and include not only conventional (or unconventional) fantasy but various forms of experimental writing. This is quite all right with me—I enjoy it all—but it isn't science fiction as Analog presents it, and the variety you get in the Ace "Best" is. As of the moment, its closest rival is the new "Best SF" pb series which Berkley launched this year with Harry Harrison and Brian Aldiss as editors, but—in spite of a pretty hard-nosed credo by James Blish—Harrison and Aldiss have included some fantasy.

To cut corners, let me simply identify some of the stories in this collection which you have probably already read in other anthologies: Isaac Asimov's relativistic detective story, "The Billiard Ball;" Robert Silverberg's already classic "Hawksbill Station" about a prison camp buried deep in Time; Harlan Ellison's just-about-unclassifiable "I Have No Mouth and I Must Scream;" Larry Niven's "Handicap" (called "The Handicapped" in his collection, "Neutron Star"); and Aldiss' "Full Sun," which projects men, robots and werewolves into the far future in a yarn which is *not* fantasy.

My choice of best of the book is, I think, Samuel Delany's "Driftglass." Delany, who burst upon us with a string of remarkable novels, is showing that he is just as good at short fiction. This is a quiet, poignant story about a time when men have been modified to live in the sea. It ends—rightly—just when an old-fashioned pulp story would have started.

R. A. Lafferty—new-talent-of-the-year—has two totally different stories. "The Man Who Never Was" is a black comedy of the West and a joke that was carried just a little too far. "Thus We Frustrate Charlemagne" is a comedy about some of the all-too-logical consequences of time-meddling; grant the argument, and the whole *genre* goes out the window.

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Richard Wilson, a regenerated veteran, has kept his sense of humor intact in "See Me Not" and thoroughly modernized the invisible man in a way that H. G. Wells would have enjoyed. Colin Kapp's "Ambassador to Verdammt" is a rich bouillabaisse with really *alien* aliens, interservice rivalry, and some thoughts about who is educable. You read it here in Analog.

"The Number You Have Reached," by Thomas M. Disch and Roger Zelazny's "The Man Who Loved the Faioli" are both last-man stories, Disch's cruel and bitter, Zelazny's gentle and tragic. Andrew J. Offutt comes as close to fantasy as the editors allow with "Population Implosion," in which the Power that controls us decides that Earth has reached its maximum allowable population. Just for balance, Ron Goulart has one of his Chameleon Corps stories, "The Sword Swallower," with a bunch of plotters right out of the Flint school.

"Coranda," by Keith Roberts, is a short story written as a companion to a novel by Michael Moorcock, "The Ice Schooner," which has not yet been published west of the Atlantic. It takes us to a future Ice Age far more intense than those of the Pleistocene, when the sea has been drawn down below the Continental Shelf, when strange creatures have evolved to live in the frozen world, and when human society has been forced back to something out of the Dark Ages—or "Conan." Finally, D. C. Compton's "It's Smart to Have an English Address" offers us a glimpse of the urbanized future and the drive for new entertainment, a new sensation, a new "art" medium. All good: the biggest six bits' worth you're likely to find this year.

THE MERCY MEN

By Alan E. Nourse • David McKay Co., N.Y. • 1968 • 180 PP. • $3.95

Since Alan Nourse was once a regular contributor to this magazine, since his stories of the Hoffman Medical Center and its exploits have been in and out of various magazines in recent years, and since Ace published another version of the book as "A Man Obsessed" a few years ago, I wouldn't let the juvenile label and the low price keep me from a good yarn.

The "Mercy Men" are medical mercenaries—men (and women) who sell themselves to the Hoffman Center as guinea pigs for medical experimentation. Jeff Meyer, who has been searching for a man who hounded his father to death, follows him into the Hoffman Center and becomes a Mercy Man. The deeper he probes, the stranger and more tortuous the plot becomes.

I don't know that any of our great medical centers will find M.D. Nourse's projection of their activities into the next century very complimentary.

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THE REBEL OF RHADA

By Robert Cham Gilman • Harcourt, Brace & World, N.Y. • 1968 192 pp. • $3.75

This galactic adventure yarn in the manner of Poul Anderson, Keith Laumer and various other familiar writers is the first of a trilogy by a pseudonymous author. It isn't quite up to their standard—but then they set the standard. It's a good deal better than some that copy it.

The time is some ten thousand years in the future, when the Second Stellar Empire is rotting away. Kier, young star king of Rhada, is summoned to Earth by the boy-king of the reigning dynasty. Though he expects treachery, he goes—and finds it in abundance. But that is only the beginning of the story.

Lots of action, lots of mystery, lots of excellent detail and nice touches in a book for teen-agers and anyone not too stuffy to enjoy color and action in science fiction.

Reviewed by G. Harry Stine

2001; A SPACE ODYSSEY

By Arthur C. Clarke • New American Library, New York • 221 pp. • $4.95

This new novel by Arthur C. Clarke is good, solid science fiction of the sort that we have come to expect from this master of the genre. In some respects, it is a master synthesis of some of the ideas Clarke apparently only touched upon briefly in such novels as "Childhood's End." "Prelude to Space," "The Sands of Mars," "Earthlight," and a number of his short stories. It is the story, fictional of course, of mankind's first contact with extraterrestrial intelligence. But, as Clarke himself points out in the Foreword, it is only fiction and the truth itself will be much stranger . . . which is almost an historical truism.

The plot is epic in scale, traversing both time and space in the fashion of Stapledon. It begins with the man-apes of the dessicated African plateau three million years ago and with an extraterrestrial exploration party's tampering with the ape minds. The ET's are not preparing the man-apes to be property; they are simply sowing the seeds of Mind among the stars.

As the time period progresses to the end of the Twentieth Century, we are treated to an updated Clarkian description of a trip to the Moon via spaceplane, space station, lunar shuttle, and lunar rolligon. This sequence has been considerably improved by Clarke since 1952 and "The Sands of Mars" where I first encountered it. In Tycho, the U.S. lunar team has found a featureless black slab buried some three million years previously. As the rising sun strikes it for the first time in all those megayears, it is triggered to

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emit a burst of energy aimed directly at Japetus, one of the moons of Saturn.

The forthcoming Jupiter mission is reprogrammed into something resembling JPL's "Grand Tour." Instead of terminating at Jupiter, the spaceship *Discovery* uses the Jovian gravity well to tack to Saturn, where, in turn, it goes through a gravity well maneuver into an eccentric orbit tangent to that of Japetus. This long trip is punctuated by the nervous breakdown of the HAL 9000 ship computer; the careful and logical explanation of a computer's neurosis will delight the programmers up at IBM because the neurosis was built-in during programming by a series of conflicting secrecy blocks. Astronaut David Bowman performs a lobotomy on HAL 9000 and manages to get the ship to Japetus.

Why Japetus? Check the astronomy books. During one revolution around its Saturnian primary, Japetus' albedo undergoes a six-fold change. Clarke's explanation for this astronomical anomaly: It's the ET's Star Gate that has been triggered by the Tycho transmitter and is waiting for humanity to come out for a look.

The description of Dave Bowman's journey through the Star Gate to an extra-dimensional Grand Central Station of interstellar travel, through a derelict orbital interstellar starport, and finally to a rendezvous with the ET's around a red giant-white dwarf double star includes some of the finest astronomical and topological narratives in print. To adjust Bowman to their presence, the ET's set him up in a luxury hotel suite fabricated by mind-over-matter and copied from a TV show that has been monitored by the artifact in the Tycho crater.

Bowman transforms himself into a new evolutionary being, the superman, the Star Child. He returns to Earth and, while orbiting his former home, reaches out with his mind to detonate the orbiting H-bombs because he wants a cleaner sky. Then, duplicating the reactions of the man-ape who has discovered the tools and weapons that enabled him to conquer the world earlier in the novel, the Star Child proceeds. I won't spoil the ending for you.

Some readers may detect that the title, some of the characters, and a few of the plot situations of this s-f novel resemble in a superficial way a recent fantasy movie which was reviewed here in the November issue. In spite of the fact that the title page of the book states that the novel was based on a screenplay by Clarke and Kubrick, everybody knows that things aren't done this way; the movie is always made from the book, and not the other way around.

Somebody really should make a movie out of *this* book!

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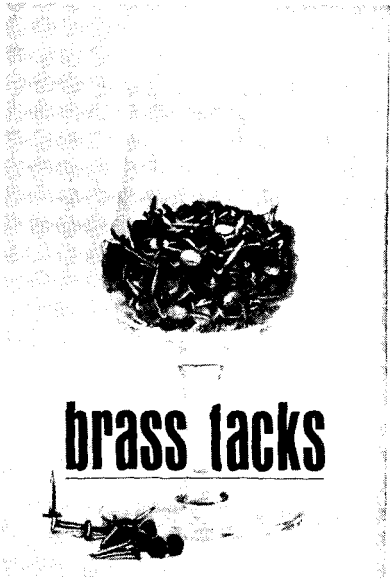

Dear Mr. Campbell:

Once upon a time—as all good stories begin—I read in a discussion on Relativistic Mechanics that Einstein had succeeded in reducing gravitational effects to purely dynamic forces. For some reason the statement must have impressed me because, even though I did not really understand it, it's been rolling around in the empty spaces of my head for some years. It must have bumped something recently because I have been having little nagging urgings to have a closer look at it.

So I took it out and brushed the cobwebs off a little corner of it and it winked at me quite interestingly. Anyway, to cut a long story short, I did a little bit of doodling with it and the results are quite interesting. Now I am neither equipped with the mathematics nor the inclination, being basically lazy as all good engineers are, to follow it through to a logical conclusion. However, being a regular reader of your monthly opus and knowing the quality of your reading public I thought I might throw it in the arena in the hope that somebody better equipped than myself will pick it up and give it a good going over.

The thought goes—illogically—something like this:

Dynamic forces are inertia or acceleration forces. Gravity, if it is a dynamic force, would have to be the result of a constant acceleration. Eureka! Centrifugal forces in a rotating universe. Only one problem, centrifugal forces, in the absence of constraints throw the bodies subject to them outwards and away from each other. Solution simple. Turn the universe inside-out and this makes the center the outside and the outside the center, hence gravitational forces repel and centrifugal forces become center-seeking.

At this stage a simple model is required to look at the effects. So let us construct a universe, a very simple one, with two masses and a lot of empty space. The universe need not necessarily be infinite in extent. In fact it had better not if purist theologians are not to accuse us of sacrilegious thoughts.

Let us make the universe with all the laws of nature as we know them and as they apply to two masses. Then we may assume that

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the two masses attract each other gravitationally and we may expect them to either meet at their combined center of mass or rotate about it forever. Since there are no other bodies in the universe, we are justified in calling the center of mass the center of the universe. Let us now postulate that the universe we have created is not a real universe but only an observer's view of another real universe which has no gravitation but which is rotating so as to produce centrifugal forces. This other "real" universe would obviously have to be an inside-out version of our created universe.

This turning inside out, of course, is a simple trick for a mathematician, at least on paper. It's called conformal transformation.

If the universe we created has two axes x and y and the "real" universe has axes u and v then any function relating x to u and y to v which has the form

$$u = x^{-n},\ v = y^{-m}$$

will turn the universe inside out for m and n positive. Now since the Newtonian gravitational law makes the forces between two bodies inversely proportional to the square of the distance between them, I would intuitively choose a value of 2 for both m and n. At this point I am overcome with amazement. A number of things are apparent. Our created universe is nothing more than a single quadrant of the "real" universe, if we give the "real" universe a rotation, we can produce centrifugal forces in the masses which when converted to our x,y co-ordinate system are indistinguishable from the gravitational forces. Also, the masses in the u,v universe travel in concentric circles. The direction of rotation of the u,v universe is irrelevant. I haven't been able to find if the value of 2 for m and n actually is the right one but there is a basic law of conformal transformation which says that any space may be transformed into any other space but the transformation may be hard to find. I have at this point lost interest in the mathematics and done some conjecturing which is far more pleasing and less hard work. After all, if somebody says that a transformation is possible, who am I to argue?

Some interesting conjectures come to mind. If the masses in the x,y universe go into stable orbit about each other, it may be postulated as being reflected in the u,v universe as a rotation of the masses counter to the universe rotation —this, by the way, does not seem possible for a value of 2 for m and n since the masses cannot leave the first quadrant. Anyway assuming that a better transforming function is possible, if the masses in the u,v universe rotate counter to the universe with the same angular velocity as the universe, their centrifugal effects would disappear and they would remain in a stable configura-

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tion, hence no gravity in the x,y universe.

If the same mathematics can be applied to our own "real," three-dimensional universe, we could easily turn gravity off by going into orbit, or turning ourselves inside out by the appropriate transforming function and running around the center of the "real" universe at the appropriate rate.

I appreciate that the difficulties might be astronomical.

I have no idea if the theory is capable of expansion or even if it is novel but if the mathematicians can't use it, perhaps somebody may be able to use it as a basis for an interesting story. They can have it with my compliments, whichever way.

MARIO ZOLIN
15 Girvan Place
Tokoroa,
New Zealand

Trouble is, now you've explained the mystery of gravity in terms of inertial effects—but you haven't explained inertia!

Sorry—sounds to me like just as bad a problem as the first!

Dear John:

In at least two of your delightful editorials in the last few years, you have put forward the hypothesis that war is a highly efficient way of achieving genetic mixing and forcing more "modern" ideas on the conquered.

I would like to propose a small extension to this idea. One continually hears that nuclear war will be the end of mankind. I am somewhat dubious, however, that nuclear war will kill any larger a percentage of a population than has been killed in previous wars. It may have taken longer a thousand years ago to burn a city to the ground and kill most of the inhabitants, but they ended up just as dead as if it had been done in the immediate nuclear blast.

It also occurs to me that if a war is a desired natural way to spread ideas and achieve genetic mixing, then there is a mathematical percentage of the conquered people that should be killed to achieve the highest mixing in the least time. At any rate, what I would like to suggest is that man's ability to kill himself has stayed more or less constant as a ratio of population over man's entire existence and that this ratio is very close to the optimum required for the fastest genetic mixing.

JACK PERRINE (DR.)
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Invalid in one critical respect: The Good Old Days killed off plenty, of course—the Hundred Years War, the Thirty Years War, the Seven Years War, et cetera, of European history, for example—but they were more selective in action. The individuals who could learn fast, who were agile, clever, wily, sly or highly adaptable, had a much great-

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er chance of surviving and propagating their educable and adaptable genes.

These useful characteristics don't help the individual in a city hit by a 50-megaton thermonuclear bomb.

Remember that not even Genghis Khan's murderous forces could kill off men who could so mimic the Mongol warriors as to be accepted as "one of our guys."

However, the new dispensation of thermonuclears may force the breeding of a superior-survivor type —we may wind up with a lot of individuals with good precognition. Descendants of those who foresaw what was coming where and got the hell away from there.

Dear Mr. Campbell:

This letter is in response to Joe Poyer's short story, "Null Zone," in which he brings up the idea of using radioactive wastes to cut enemy supply lines and infiltration routes. I thought you might be interested in the following quotes from General Douglas MacArthur's "Reminiscences," in which he describes part of his plans to end the Korean War:

"If I were still not permitted to attack the massed enemy reinforcements across the Yalu, or to destroy its bridges, I would sever Korea from Manchuria by laying a field of radioactive wastes—the by-products of atomic manufacture —across all the major lines of enemy supply."

"[The clearing of North Korea of enemy forces] could be accomplished through the atomic bombing of enemy military concentrations and installations in North Korea and the sowing of fields of suitable radioactive materials, the by-product of atomic manufacture, to close major lines of enemy supply and communication leading south from the Yalu."

It is ironic to realize that if these suggestions had been carried out, we would probably not be worrying about North Vietnamese infiltration now; MacArthur made these suggestions in 1951.

JOHN HAYES
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Santa Monica, Calif. 90405

By using selected isotopes, the period of interdiction could be neatly predetermined!

Dear Mr. Campbell:

I am writing this letter since, as the world's greatest and youngest sociologist, psychologist, and general trend predictor, I believe I have something to say. As a matter of note, the aforementioned is the reason, within my experience, why most people write nonpersonal letters.

The most significant change in my life occurred sometime in the sixth grade. This was when I first began to really think. Later I realized that this meant I had been through at least ten years of total brainlessness. I figured I was just a

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slow starter until I noticed that even many so-called adults were still in the brainless stage. By this, I don't mean that some people are incapable of thinking, merely that they refuse to unless it is in order to make it easier for them to *not* think later.

I think that the preceding is the reason politics and government are so messed up today. A person who seemed to cherish the job of Congressman when he campaigned suddenly finds unquestionable reasons why he can't co-author a bill to combat crime and embellishes another which proposes to give the SPCA and the Humane Society authority to prosecute in cases of animal mal-treatment or something equally absurd. The reason behind our inability to do anything about Vietnam is the constant claim by the White House and Congress that they are doing all they can, while in reality they are doing nothing except insisting that each problem is only a petty thing and history will bear them out. This is the Ostrich Complex in its most simple and effective form: "Close your eyes and it will all go away."

The "campus situation" is different, but only in degree. Nonthinkers walk or run or sit around spouting nonconformist slogans and other conformities. Their complaints of "I can't do anything" are right, but adding "you just won't let me," is wrong. They propound profound statements of ambiguous meaninglessness, and then say, "It must be true. You keep telling us that we're smarter, unbiased, free thinkers, and if you say I'm wrong I'll hit you with my 'nonviolent' sign." They are not smarter, they merely know more useless material. Their free thinking consists of uninhibited thumbsucking and staging sit-ins when they could be working to alleviate their problems. And being un-biased means that they hate all adults, especially parents, with a marvelous disregard of race, creed, or their own intelligence.

Now, in order to make this letter meaningful, I will expand on the causes of nonthinking and also propose ways in which we, as loyal Earthlings, can fight this dreadful disease, which is both inheritable and communicable. The ratio of thinkers to nonthinkers is probably the same as it has been for centuries, but this ratio should increase as our problems grow increasingly complex and involve more and more people. Even though our educational system is getting better, most teachers are nonthinkers and/or can't get the art of thinking across to their students.

The best way I know of to start a person on the way to being capable of rational thought is what I term the "question" method. This is based on the fact that a person can continually increase his knowledge by correctly answering questions based on his previous knowledge. The obvious objection to this

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method would be that it requires a person of greater knowledge to ask the questions. However, teachers are supposed to know more than their students. Also, I have found, from my use of the method, that my friends quickly pick up the habit of asking themselves questions; in other words, to think. Even though there is no guarantee that this type of reasoning, when learned in a math class, for instance, will be used elsewhere, I am sure such petty details will soon be taken care of.

Following are tentative rules for the method, which was first applied in a math class of which I was a member:

1. Always answer a student's question with another, *informative* question. An informative question is one which is simple enough for the student to answer, yet enables him also to see the way to the answer of his original question. Example: "How do you add three pi to pi?"

   "What is three eggs plus another one?" I think this Q.-A. set explains itself.
2. Don't tell a student something he already should know. Example:

   "What theorem are you going to use?"

   "I think one with parallel lines."

   "Which one?"

   "I don't know."

   Refrain from the temptation to make a suggestion here. Say instead: "Well, you should. Look it up."
3. Always ask the student to correct his missed questions on tests. This in effect is making the student ask himself how he missed them. Of course, any of his questions are answered as explained above.

The main problem some teachers may have is that of time to answer all questions. However, a few days of pure problem-solving and question-asking should put both student and teacher in a good frame of mind for success of the method. I do not say that this method is the only one needed to create thinkers, and it may not work at all on some students, but neither does aspirin. If my method helps even 1% of the people who would never learn to think, I would be happy. I know from experience that this works in real life, so I am positive it can work for others.

If there are other problems you wished solved, don't hesitate to call on me. I'll think of something. You have a great magazine and I would do anything—except shut up—to make it better.

ED BOLSON

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Bellevue, Washington 98004

Friend—look out for that method! It's a killer! It's called "The Socratic Method"—and look what the Athenians did to him!

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EDITORIAL
continued from page 7

for a simple, effective, high-power bomb that doesn't even need a detonator. Just mix a couple of white, crystalline powders—being *very* gentle!—and put them in a length of gas pipe, capped at both ends, and all you need do is throw it.*

There are plenty of simple chemicals, available at drugstores, hardware stores or supermarkets that can readily be combined to make bombs that don't even need detonators.

However, dynamite caps aren't too hard to steal, if you're in the crime business anyway, or planning to get in. And then all you need is some fertilizer and household heating oil for a really professional high-explosive bomb.

If the detonators seem hard to come by, a little disinfectant from the drugstore, and some innocent ammonia can be converted to a real dilly. (Any chemist present knows what I mean.)

The point of all this? Simply that guns are not the problem—they're the symptom. Take that symptom away, and in any high-technology culture alternative technical weapons are available on every supermarket, hardware store or drugstore shelf.

In a modern high-technology civilization, the smart and utterly unprincipled barbarian has a million tools of death available to him.

If you insist on death-by-remote-control, remember that a crossbow is just as deadly now as it was five hundred years ago—and with modern metallurgical products available—such as automobile springs—could be made capable of even greater range and penetration power.

The problem is not weapons.

The problem is murderers.

The problem is the problem of imposing discipline on the unprincipled.

Punishment of criminals is not intended to restore the victim; nobody ever considered it would. It's intended to prevent the criminal considering the crime worth the cost.

Fools have said that, because punishment of criminals never stopped murder, punishment is, therefore, useless.

This is like saying that, because doctors can't cure death, there's no use for doctors. That because the space vehicles, such as Gemini and Apollo, leak air into space, there's no point in having seals around the windows and lock-doors. That because heat still leaks out of your

* Any chemist can name the two powders; pardon me if I skip publishing the details involved for some not-too-bright kid to try experimenting with. Only the stupid and/or insane would do so, but there're always some around.

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house during the winter, there's no use having insulation and storm windows installed.

In effect, that because total success cannot be achieved, there's no use trying.

The death penalty for murder makes a great deal of sense; most people prefer not to die, and the stronger the probability that a certain act, murder, will lead to execution, the less attractive murder will appear. Moreover, execution has the great advantage that one known murderer—for whatever reason he may have chosen to commit the crime—definitely will not repeat his act.

Sure . . . there's some degree of probability a few innocent men will be wrongfully convicted and executed. That probability is less than the probability that a murderer will mistake his victim and kill somebody else, and much lower than the probability that a murderer, seeking to kill A, sprays the neighborhood with death killing B, C, D, and E also, while wounding and crippling for life four other bystanders. (He had to use a bomb because the gun laws made a selective death tool much less convenient for him.)

All that we-may-make-a-mistake argument means is that nothing human is perfect. O.K.—so face up to it, acknowledge that that's how life is, and don't expect perfection as your natural right. It isn't. You're stuck in a Universe too complex for human-of-the-present-level understanding; give over the idea you'll ever get perfection, and do what any sane, responsible engineer does: Design for *optimum function*—not expecting perfection. Later, when we learn more, we can improve the optimum.

For instance, given full telepathic probes, we could assure that only the truly guilty were punished, and that all truly guilty were punished. All that would be needed would be a mind-reading probe of all those around the scene, and guilt would be immediately and infallibly determined.

The citizens remaining in any area would certainly be clean, law-abiding citizens, too—every one of them. Because the only kind of person who would not mind such a probing would be those who had absolutely nothing, either public or private, that he felt should be hidden.

That might be a perfect, crime-free state all right—but how many of you want to vote for it?

So we need an optimum. And that we definitely do *not* have—not with the swiftly rising crime rate. Of course the spectacular murders of leaders makes headlines, but they are, actually, a very minor part of the crime bill. The great crime bill has to do with muggings, small-store stickups, private murders, and things that hardly make

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a three-inch item in the daily paper.

The reason the crime syndicate flourishes is that they do, in fact, operate with reason and restraint; the organization is run by intelligent, competent executives who have an excellent sense of what constitutes optimum from their viewpoint. They're not unduly greedy; their income derives from things the public actually wants, but won't acknowledge it wants, and won't make legal. The public wants to gamble—and doesn't pass laws making it legal and open and controlled. So the Syndicate supplies what is wanted.

Prostitution is referred to as "the oldest profession"; it's pretty evident that it's something human beings want, but are too dishonest to acknowledge—so the Syndicate supplies it.

The Syndicate is completely amoral—but not witless. They minimize murder, and confine it almost entirely to disciplining the members of their own community. The individuals who drift into professional crime are essentially undisciplined, rebellious, untrustworthy types; it takes hard-handed, hard-headed management to keep such petty crooks in line and behaving properly.

The Syndicate represents an "optimum" given the cockeyed situation of a culture that insists on having something which it insists it doesn't consider proper.

It isn't Cosa Nostra crime-in-the-streets we have to worry about; that's controlled by intelligent, though amoral, men.

Our problem is the undisciplined rebel who has *not* been taken in by the Syndicate, and disciplined in the only way that works with that type—by beatings, and a certainty that death will most assuredly follow major violation of the Syndicate rules.

The problem is the mugger, the rapist, the crackpot, and the petty crook—the type that hasn't wits enough to realize he's incompetent and a conviction that he can get away with it because he's so much smarter than the law-abiding fools. The James Earl Ray type, who spent decades trying to be a big-shot criminal, and never once got away with his crimes. And *still* didn't catch on to the fact that he was a fool.

But that, of course, is the inevitable consequence of being a fool—he doesn't see what anyone but a fool could see.

This wasn't because his childhood and home life were less than ideal—it wasn't "society's fault."

Save only in that Society didn't give him the hard-handed, hard-headed discipline that would have forced even a fool to see that he couldn't live the way he wanted to.

Our problems stem from the failure of Society to recognize that *not all men are equally competent.*

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That not all men have equal IQ's, or equal Moral Quotients either. Some men are born mentally defective—no fault of theirs, or of anything but The Way Things Happen. The Way the Statistical Laws of Genetics work.

And some are born morally defective; some quirk of genetics has produced an entity simply totally lacking what we know as "conscience." Such an individual simply cannot be moral-by-nature; it is no more his "evil will" than that a genetic moron's stupidity results from "willful refusal" to learn.

Incidentally, it has now been demonstrated, in a beautifully neat experiment with dogs, that conscience *is a genetically controlled factor.* The experiment—very briefly—involved testing different breeds of dogs in a "conscience test." The test involved taking the dog into a room, with a pan of food on the floor; the dog's master-trainer then told the dog he was not to eat that food, making sure the dog understood by a few swats with a folded newspaper when he first went for it.

Then the trainer left the room —while observers watched through a one-way mirrow-window. If the dog had not touched the food after ten minutes alone in the room—he had a conscience!

There isn't room here to give the whole experimental setup, but the essence of it was that the African Basenji dogs showed no conscience; they devoured the food as soon as the trainer was out of the room. (The Basenji is a dog bred for ages as a lion-hunter—bred specifically for bravery, persistence, and hunting ability.)

The Shetland collies proved to have one hundred percent conscience; they didn't touch the food at any time during the ten-minute test.

Retrievers showed a near-perfect record.

Shetlands have, for centuries, been bred as working sheep-dogs —and shepherds hate a sheep-killing dog with an abiding hatred. A sheep-killer, when caught, not only earns death for himself—but for all his get. The dog must *never* attack a sheep or a lamb; he must *always* herd them, care for them, and protect them against enemies —although a sheep is a wolf-dog's natural prey.

Keep up that selective breeding program for a few hundred generations and what do you expect? Dogs with a tremendously strong conscience!

Retrievers, on the other hand, are required to find downed birds, and carry them gently—uninjured —in their mouths, to their masters. They must not break the bird's skin, and must not eat the bird (despite having the odor and taste of the killed bird's blood in its mouth—something of a difficult problem for an instinctive carni-

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vore!) on the way back to the master.

Though that was not the original intent of the experiment, it definitely showed that conscience in mammalian organisms is a heritable, genetically controlled potential.

The conclusion for humans, it seems to me, is that some people are born with consciences, and refrain from crime because they have *that built-in self-discipline;* others can refrain from crime when they feel that there is a pressure that backs up their somewhat feeble self-discipline with a strong, firm external discipline. And some simply have no conscience.

And these variations of natural potential are genetic, not due to any fault, or flaw, in Society.

The evil flaw in our current society is, simply, the failure to help those with intermediate, present-but-weak conscience by supplying the firm external discipline.

The strong-conscience types don't need a policeman on the beat —they have one built in. And, obviously, policemen should be selected from the "Shetland collie" types who have born-in one hundred percent self-discipline. (Note that the true sheep dog will not harm a lamb—but will attack a coyote, or a wolf, that threatens his flock. He's gentle—but by no means unready, or unwilling, to attack enemies with slashing fangs. He's got just as much iron-willed courage as the Bessanji—plus a conscience that directs it.)

The intermediate types do need a policeman on the beat—a policeman who can, and will apply real discipline if their own self-discipline slips. These are the ones who can be saved for their own, and Society's benefit, by effective, firm, external discipline.

The third class has no built-in discipline—and will behave only so long as the policeman is immediately watching. That's the type that punishment does not affect—they are the ones who will murder even when the policeman *is* watching. The ones who are not stopped by punishment—they are the ones who have led to the oft-repeated cry that "Capital punishment has never stopped murder—it does no good! It's mere angry vengeance, which is inhuman!"

It is not mere angry vengeance; it helps to eliminate from the human gene pool individuals who do not have the gene for conscience. It assures that one murder is all the killer has a chance to commit.

And it does help the intermediate type to brace their somewhat weak self-disciplined conscience.

We've removed that restraint recently.

And we wonder why there's been such a ghastly increase in crime in the streets.

Isn't it mysterious?

The Editor.

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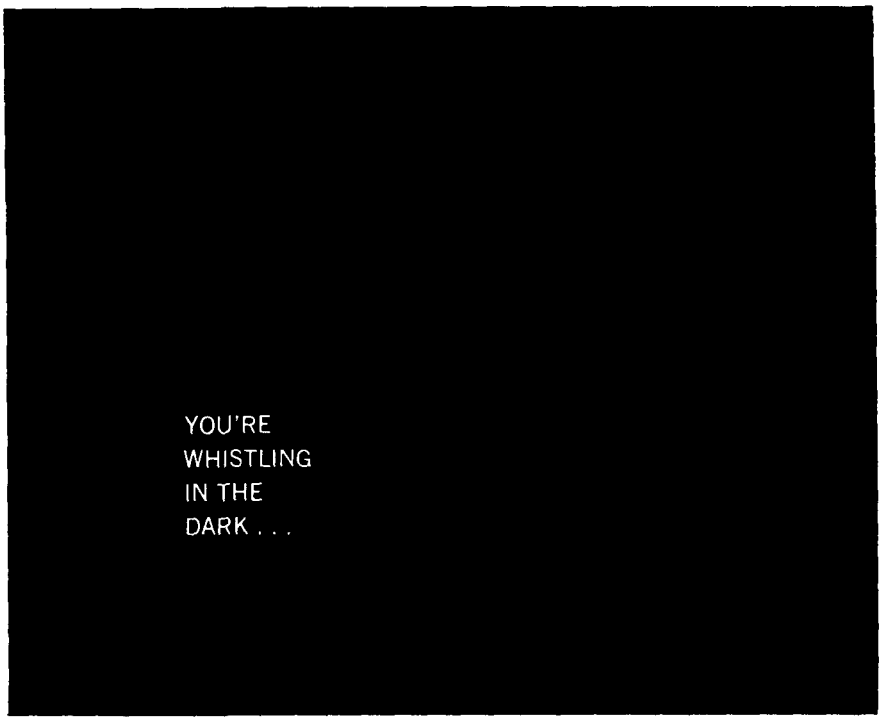

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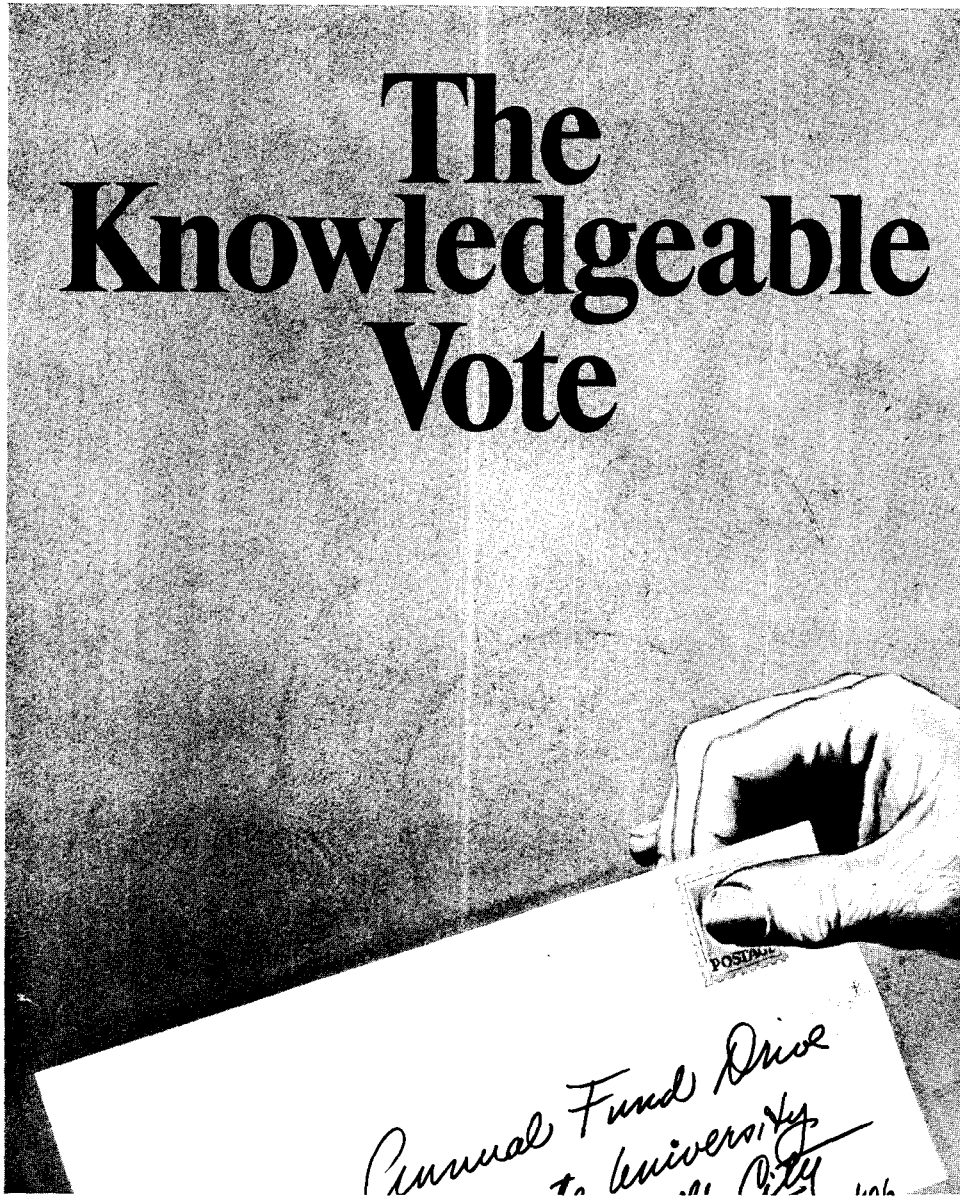
The Knowledgeable Vote



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